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THE VALUE AND LIMITATIONS OF LABORATORY METHODS IN CLINICAL INVESTIGATION OF CARDIOVASCULAR DISEASES.*

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The director of a department in a medical school enjoys many privileges; but he carries numerous and varied responsibilities as well. He is charged not only to teach medical students but to inspire them as they learn. It is his function so to staff and organize his department that productive investigation for the good of humanity is continually, not spasmodically, carried out. It is his duty periodically to summarize by reviews or monographs the status of a subject in which he is qualified, so that others may keep in touch with the progress of contemporary research. Occasionally, as in this instance, it is his privilege to do this in a more personal way by means of a lecture. Frequently, he must courageously face the less pleasant task of criticizing the methods, results, and interpretations of other investigators, to the end that the quality of research shall steadily improve. Even though executive matters be in able hands, he cannot absolve himself from courageous participation in molding the plastic tendencies of the institution of which he is a living part.

I venture these observations of a general nature before proceeding to the main theme because professors in the ranks can often give expression to ideas with better grace and propriety than administrative officers themselves. Professorial opinions so expressed can only be interpreted as personal views; whereas the same opinions uttered by a President or Dean are more apt to be regarded as expressions of institutional policy.

With this sense of immunity from misinterpretation, the temptation arises to devote an entire oration to problems affecting a medical school. Such a discourse would not be inappropriate on an occasion set aside as a memorial to Dr. Chaillé. For, while it has not been my privilege to know him personally, I am given to understand that no subject was dearer to his heart than that of the constant development of the School whose Dean he was.

I have, however, succeeded in inhibiting this temptation to the extent of touching briefly upon a single theme only, and one which leads directly to the subject announced. I refer to practical methods through which clinical departments may derive greater assistance from the laboratory sciences.

The tendencies of the age are evident to all. Clinicians everywhere recognize that material assistance is gained from the application of laboratory methods both for the purpose of investigating the phenomena of disease and as a matter of

*Chaillé Memorial Lecture delivered at New Orleans, December 4, 1928, by the Professor of Physiology, Western Reserve University Medical School.

routine in diagnosis. Clinicians have, in many instances, been leaders rather than followers in the application of laboratory apparatus to man and deserve credit for advancing our knowledge of normal as well as abnormal functions in many directions. Nevertheless, too much of the clinical investigation on patients lacks the convincing precision and accuracy of true scientific work. I was particularly impressed with this fact in a recent survey of literature preparatory to writing a review of the dynamics of valvular disease. This is partly due to the clinician's atttitude and belief that the acquisition of laboratory technic is a simple matter which may indeed be entrusted to technical assistants. He often fails to recognize that errors steathily creep into results obtained by use of apparatus, either on account of inherent limitations of the instruments or because of faulty technic in their use. The personal equation must not be lost sight of. It must never be forgotten that errors that attend the use of an instrument of precision are a function of the individual himself as much as of the instrument. The limits of accuracy must be experimentally established when he *himself* uses the instrument. The fact that the clinician rarely has had a laboratory apprenticeship where the efficiency and limitations of apparatus are checked is largely accountable for this clinical attitude. This fallacy may and often does affect the results; the basic data upon which the conclusions of many a clinical investigation rest contain a significant but unrecognized margin of error. Hence, I would make a plea for a more critical attitude in the selection and use of laboratory apparatus by the clinician.

The clinical investigator, however, does not restrict his studies to patients upon whom Nature is already making experiments; he reproduces and simulates the conditions in animals, with a view of carrying observations further than is possible in man. This tendency is gaining rapidly; in fact, the clinician who does not have an active experimental laboratory attached to his wards is apt to be considered passé. The motive and principle are good and considerable advantage accrues as long as the clinician limits himself to the use of technical apparatus with which he is familiar. When, however, his ambition to engage in experimental work outstrips his laboratory training, the results are far from satisfactory. The space and money devoted to such undirected investigations by unqualified clinical workers is not justified; the time and efforts of men so engaged could be directed to better ends. The products of their laborious efforts could, I am sure, be spared from the pages of our research journals.

The able clinician recognizes the situation. He knows that the attainment of accurately controlled data as well as their interpretation demands more than an elementary knowledge of fundamental principles. He also realizes fully and with great regret that his many professional and administrative functions make it impossible for him to keep abreast of the rapid advances made in all laboratory sciences. He naturally looks to the laboratories for further aid. How can they help to advance clinical investigation? Several ways are being tried.

1. Young assistants who propose to follow an institutional career may spend a year or more in a laboratory either as Fellows or Assistants. Such training will partly but not wholly solve the difficulties. It gives younger clinical investigators a better fund of information as to current aspects of a science, it enables them to differentiate between efficient and inefficient apparatus, it teaches them the caution and safeguards necessary in attaining accurate results, and if widely carried out will help to replace the present purposeless trend of much clinical investigation by research of a more significant sort. But valuable as such a year or two may be, the clinician still finds himself trained only in one direc-

tion, as far as ability to undertake or direct investigative work is concerned.

The suggestion has been made that each clinical department should have men fully trained in a fundamental science. The happy combination of a capable clinician and a well trained investigator must operate to give a well directed impulse to the study of disease. To be truly effective, each clinical department in every medical school ought to have a full complement of laboratory experts; a biochemist, a bacteriologist, an immunologist, a pathologist, a pharmacologist, a physiologist. So constituted, each clinical department could consider itself a self-contained Institute of Medicine. The plan, however, is self-abortive. The cost would be prohibitive; and the number of available places would soon exceed the supply of trained laboratory investigators.

The *extent* to which such a scheme can operate to the advantage of clinical departments and without injury to laboratory sciences is contingent upon the number of recruits that can be drawn into the laboratory branches of medicine. To preserve the integrity of the laboratory sciences, it is unwise to create clinical posts more rapidly than laboratories can afford to part with men. Nor should men be tempted to leave the laboratory posts by offerings of somewhat better compensation. A few years before the War, this danger threatened the very existence of some physiology laboratories. Fortunately, the dearth of laboratory assistants is diminishing somewhat and, with this stimulus of gradually rising salaries, we may be able to attract more men and consequently spare more for clinical positions.

3. A great deal can be accomplished without additional expense, by a more intimate co-operation in laboratory and clinical researches. This could go farther than the present tendency to consult and confer. Members of laboratory and clinical division could to advantage work together upon many clinical problems. In this way, newer and more reliable forms of apparatus would supercede much equipment that is obsolete; the data would be better controlled, and the interpretations of results would be integrated with the clinical problems. Indeed, with the proper motivating spirit behind such co-operative research, it becomes the ideal method for advancing clinical investigation. It has possibilities which neither laboratory nor clinical departments working by themselves can hope to equal.*

CLINICAL AND LABORATORY CO-OPERATION IN THE STUDY OF CARDIO-VASCULAR DISEASE.

Recent laboratory investigations have established the laws according to which the heart operates in health and by means of which it compensates in disease: Whenever the rate of venous inflow exceeds, for even a short interval of time, the rate at which blood is pumped out of the auricles, the diastolic size of the ventricles increases and the intraventricular initial tension augments. As a result, the systolic discharge increases, partly through prolongation of contraction, partly through a greater velocity of ejection. The economy of effort during ejection is also enhanced. This is the *fundamental mechanism by which the heart increases its stroke volume,* (a) when the heart slows greatly (sinus bradycardia, heart block), (b) when the volume of blood returned to the auricles increases (after exercise, dyspnea or plethora), and (c) when part of the volume ejected during systole flows back into the ventricle during diastole (in mitral and aortic regurgitation where it is the *compensatory mechanism* tending to keep the systolic discharge normal (d) when the resistance to discharge is increased (in hypertension, aortic stenosis), and (e) when ventricular emptying would

*The remainder of the lecture was delivered without a manuscript. It consisted in an effort to show how such clinical and laboratory cooperation is possible in the study of cardiovascular diseases.

otherwise be impaired as a result of myocardial weakness (hypodynamic heart).

Laboratory investigations have supplied new forms of apparatus, the application of which to man enables us to evaluate the behavior of the heart under normal and abnormal conditions, according to the principles outlined above. It remains for laboratory and clinical investigators to unite in applying such newer methods to cardiodynamic problems presented in the clinic.

We can do no more than to enumerate the methods discussed and briefly to indidate a few of the salient points made in regard to each topic.*

1. *The comparison of roentgen-ray plates of different subjects.* This furnishes our best criterion of diastolic size but is subject to complicating effects of heart rate, hypertrophy, and individual differences due to age, weight and height.

2. *Venous pressure measurements in man* in the extremities parallel but do not actually measure right auricular pressures. They may give evidence of the trend of venous pressures but not actual figures for gauging the load on the heart.

3. *Measurement of minute volumes and systolic discharge.* The gasometric methods of determining minute volume are sound in principle; but difficulties of application are so great that I question whether results by any method applicable to man can be generally relied upon. The faith of clinical investigators in the accuracy of these methods is not sustained by critical laboratory studies. On the other hand, the value of pulse pressure variations as an index of systolic discharge has been unjustly critized and minimized.

4. *Information given by accurate records of the central subclavian pulse,* when taken in conjunction with ordinate values (Fig. 1) given by brachial, systolic and diastolic pressures.

(a) The afterload against which blood is expelled (=diastolic pressure).

(b) The maximum tension developed within the ventricles (=systolic pressure).

(c) The rate of pressure transfer from ventricle to aorta at beginning of ejection, by steepness of first upstroke (A—B) and by vertical height of the anacrotic jog (B).

(d) The velocity with which the ventricle expels its contents during maximum ejection—by the gradient of the rise from B—C.

(e) The duration of the ejection phase (A—D), and its subdivisions A—B, initial ejection; B—C, maximum ejection; C—D, reduced ejection.

5. *Clinical methods for evaluating pressure conditions in pulmonary circuit.* (a) Left auricular engorgement—detectable by roentgen-ray methods, large P waves of electrocardiograms.

(b) Augmented pumonary arterial pressures—detectable by accentuation of second sound. The technic of registration by direct means was given.

(c) Methods of determining pulmonary circulation time.

(d) Vital capacity measurement as criterion of pulmonary congestion.

*This section of the address was copiously illustrated with lantern slides.

THE DIAGNOSIS OF MYOCARDIAL INSUFFICIENCY: RESULTS WITH MODIFICATION OF THE DWIGHT-FROST CARDIO-RESPIRATORY TEST.*

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NEW ORLEANS.

Many of us easily recognize edema of the ankles, marked dyspnea or edema of the lungs, with an enlargement of the heart, as evidence of a failing heart muscle, but if we wait for these late signs in this condition the prognosis is considerably graver and the treatment more extensive and costly to the patient.

Accepting Starling's opinion that the physiology of the heart muscle as regards its ability to contract and perform work is identical with that of the skeletal muscles, I have for years attempted to recognize early signs of myocardial failure and by toning up the heart muscle with proper exercise, I believe I have seen some beneficial results, which I have reported in the past.(1) It cannot be denied that the efficiency of the heart function is dependent directly upon the tone of its muscle, and that any treatment of an individual should be based upon a consideration of the tone of his heart muscle, be the treatment surgical, medical or hygienic.

In arriving at a diagnosis of a weakened heart muscle, the history of the case is very important, bearing in mind that all the acute infectious diseases, as well as syphilis, rheumatism and renal insufficiency leave their imprint upon the heart muscle. One of the earliest symptoms is dyspnea, noticed only when mounting stairs, or upon other slight extra exertion, and often not recognized by the patient until reminded by questioning of the examiner. A slight hacking cough, often nocturnal, may be the initial symptom.

Pain in the epigastrium, with an enlarged, soft, tender left lobe of the liver may be the symptom causing the patient to seek medical aid, or it may be indigestion and a general feeling of lassitude. Vertigo on exertion, fainting spells and edema of the ankles or lungs, even though slight, must be regarded as evidence of marked myocardial weakness.

In an attempt to recognize these cases early, I believe we should consider a soft systolic murmur at the apex, distant indistinct heart sounds, and all arrythmias as suspicious of myocardial changes, while a pulsus alternans obtained in the routine taking of systolic blood pressure has uniformly proven to be due to a weakened heart muscle. When this condition is suspected instruments of precision should be used as aids in arriving at a positive diagnosis, and along with the electrocardiograph and polygraph, the cardio-respiratory test should be included.

In a paper before the Sixth Annual Congress of Anesthetists in May, 1927, I reported results with a modification of the original technic of Frost's(2) test, which was favorably discussed by him at that time, and I understand that he has since modified his original plan somewhat along the lines suggested.

I have been using the Dwight-Frost Cardio-Respiratory test as a routine in my office work since 1924, and I am firmly convinced that it is an extremely valuable aid in the diagnosis of myocardial insufficiency. To one unfamiliar with the method, the test may at first appear complicated and impractical, but very little experience soon removes objection.

The technic is fully described by Frost,(2) as well as in a paper by me,(1) both of which references are easily accessible, and a detail of the original methods of procedure is unnecessary.

*Read before the Orleans Parish Medical Society, November 26, 1928.

MODIFICATIONS OF THE ORIGINAL TECHNIC.

As a means of evaluating cardio- vascular cases from a life insurance standpoint, the full technic is necessary and should be followed closely. From a clinical standpoint, however, I am of the opinion that the last three steps in the test; in which the patient is made to expire his full vital capacity through a Simplex Spirometer three successive times, is the all important part of the test. In numerous instances, I have been able to demonstrate the presence of myocardial insufficiency by this means, which subsequent observation of the patient has confirmed. Several precautions, however, should be observed:—(1) A constant pressure of 20 mm. should be maintained; (2) the full vital capacity should be expired; (3) the maximum rise in systolic pressure should be recorded; (4) the rapidity with which the terminal rise in systolic pressure appears, should be noted; in cases of marked myocardial weakness, five to ten seconds may elapse after release of positive pressure in the thorax before the systolic pressure can be heard; (5) the systolic pressure before each step should be noted, as a falling base line has great significance; (6) the successive steps should succeed one another within ten seconds of each other.

I have not found it necessary to release the pressure in the cuff until the three stages have been completed. There are points in the use of the test, such as the detection of the so-called "irritable" heart with hypertension after respiratory strain; and the reaction of diastolic pressure to respiratory strain, especially noted by Amiral,[3] which are not within the scope of this paper, but which may be very important in judging a life insurance risk, and for which, the full technic is necessary.

I have followed Frost's technic carefully, but found that steps 3, 4 and 5, have not given sufficient information to warrant the time consumed in instructing the patient in same; and for the past two years I have dispensed with these steps. Step 2, in which the patient inspires fully and relaxes the chest and the diaphragm gives an idea of the tone of the heart muscle and demonstrates if the patient understands what is meant by a full inspiration.

PRESENT PLAN OF USING THE TEST.

The technic which I now use, is as follows: After physical examination of the patient with recording of results, the systolic and diastolic pressure is taken by the auscultatory method with the patient seated, the pulse rate being counted at the same time by auscultation over the brachial artery. The patient is then instructed to inhale fully, close the glottis and relax the diaphragm, the systolic pressure being noted, but not recorded. The pressure in the cuff is then released and the patient told to expire through the spirometer after full inspiration, cautioning him to watch the pressure gauge and keep the pressure uniform at 20 mm. of mercury. The systolic pressure is taken before the patient inhales, and after expiration has been completed, the maximum systolic pressure being recorded. Without releasing pressure in the cuff, the needle of the spirometer is turned to zero, the systolic pressure is again taken and the patient again instructed to inhale fully and expire through the spirometer as before. Three successive readings are then made, corresponding to steps 6, 7, and 8 in Frost's technic. The results of each previous step can be recorded while the patient is expiring through the spirometer, this being facilitated by a pad on the desk with blank spaces to be filled in, as shown by the accompanying sample:

CARDIO RESPIRATORY TEST.

Blood Pressure and Pulse				Vital Capacity
Before Test		After Test		
Systolic	120	Systolic	130	230
Diastolic	80	Diastolic	80	
Pulse rate	76	Pulse rate	74	

Base Line		Response	Cu. In. Air Blown
1.	120	140	225
2.	130	150	230
3.	145	165	225

The pressure in the cuff is then released and after a delay of about ten seconds the

systolic and diastolic pressure, as well as the pulse rate, are finally noted, followed by auscultation of the heart to determine the appearance of any murmurs or the accentuation of pre-existing mumurs, as well as a notation of any irregularity in rhythm.

The response in each step can be plotted as a curve, an ascending curve denoting a normally functioning myocardium.

This modification shortens the Dwight-Frost test materially, and can be carried out in a few minutes. It should be a routine procedure before any anesthetic is administered, as well as in any complete physical examination. A discussion of a few cases will probably be more convincing in determining the clinical value of the test, than any statistical study of cases, and I have therefore, chosen the former method.

ILLUSTRATIVE CASE REPORTS AND COMMENTS

Case I. (Chart I). A young man examined by me in August, 1925, with a long s anding organic valvular heart lesion, resulting in mitral regurgitation. Heart was hypertrophied and responded excessively to respiratory strain, so that he was a poor insurance risk, but an excellent operative risk. He is in perfect health, plays golf regularly, and his curve denotes a good myocardium.

Case II (Chart II). A patient with attacks of tachycardia coming on at irregular intervals, and greatly worried over his condition, having been told that he had "myocarditis" after an electrocardiographic tracing had been made. He was highly neurotic and suffering from gastric distension, the result of pylorospasm. No physical signs could be found suggesting any cardiac lesion, and his curve denotes a sound myocardium.

Case III (Chart III). The curve as well as physical signs denote an enlarged heart with a weakened heart muscle, the result of lues. A poor operative risk.

Case IV (Chart IV). Evident myocardial insufficiency, and a poor operative risk.

Case V (Chart V, A and B). A merchant, 62 years old, with dypsnoea on exertion, cough and occasional vertigo. At first examination, February 24, 1926, (Chart V, A.) he had definite myocardial insufficiency, following influenza, and at this time he was a poor operative risk. After an intitial rest in bed followed by graduated exercises, his heart muscle has toned up and he, now, has no subjective symptoms of a weakened heart muscle, while a cardio-respiratory test made March 21, 1927, (Chart V, B.) shows a normal response to respiratory strain. In my opinion he is now a good operative risk.

Case VI (Chart VI). A clerk, 46 years of age, complaining of nervousness, palpitation, oppressed feeling in region of heart, gastric distension. He was told he had "nervous indigestion." Physical examination was only suggestive of a weakened heart muscle, but his response to the cardio-respiratory test was very poor, and with a falling base line, a diagnosis of myocardial insufficiency was made, which was confirmed by the development later of definite symptoms of such: a poor operative risk.

Case VII (Chart VII, A. and B.). A manager of an oil company and leading a very sedentary life, was examined by me first, March 9, 1925, (Chart VII, A.) when no definite signs of any myocardial disease could be determined, but he was advised to take more exercise on account of a slightly lower response to respiratory strain than is normal. In September, 1926, following influenza, he had an acute dilatation of the heart, with auricular fibrillation, and he was moribund for 24 hours, the heart finally responding to quinidin. He is now able to attend to his business, but has dypsnea on climbing stairs, while physical signs and the response to the cardio-respiratory test, (Chart VII, B.) denote marked myocardial weakness. He is a poor operative risk at present, and in my opinion the prognosis is grave as he cannot be persuaded that he has a bad heart, since he has been told that he has no murmur.

Case VIII (Chart VIII, A. and B.). J. B. S., aged 63, who has been under my observation for the past 13 years, coming for periodic physical examination every three to six months. In 1915 a weakened heart muscle was recognized associated with adiposity and he was persuaded to take up golf, gradually increasing the number of holes he was allowed to play up to the full 18. After losing about 30 pounds in weight and daily rounds of nine holes of golf, his heart muscle compensated fully, to show evidence of failure after a mild catarrhal affection of the respiratory tract. Chart VIII, B., shows the heart muscle functioning normally, while Chart VIII, A., shows a poor response, with marked decrease in the vital capacity, auricular fibrillation and the appearance of a murmur at the apex. Decompensation had followed a month's touring trip when he took no exercise, ate excessively, and finally

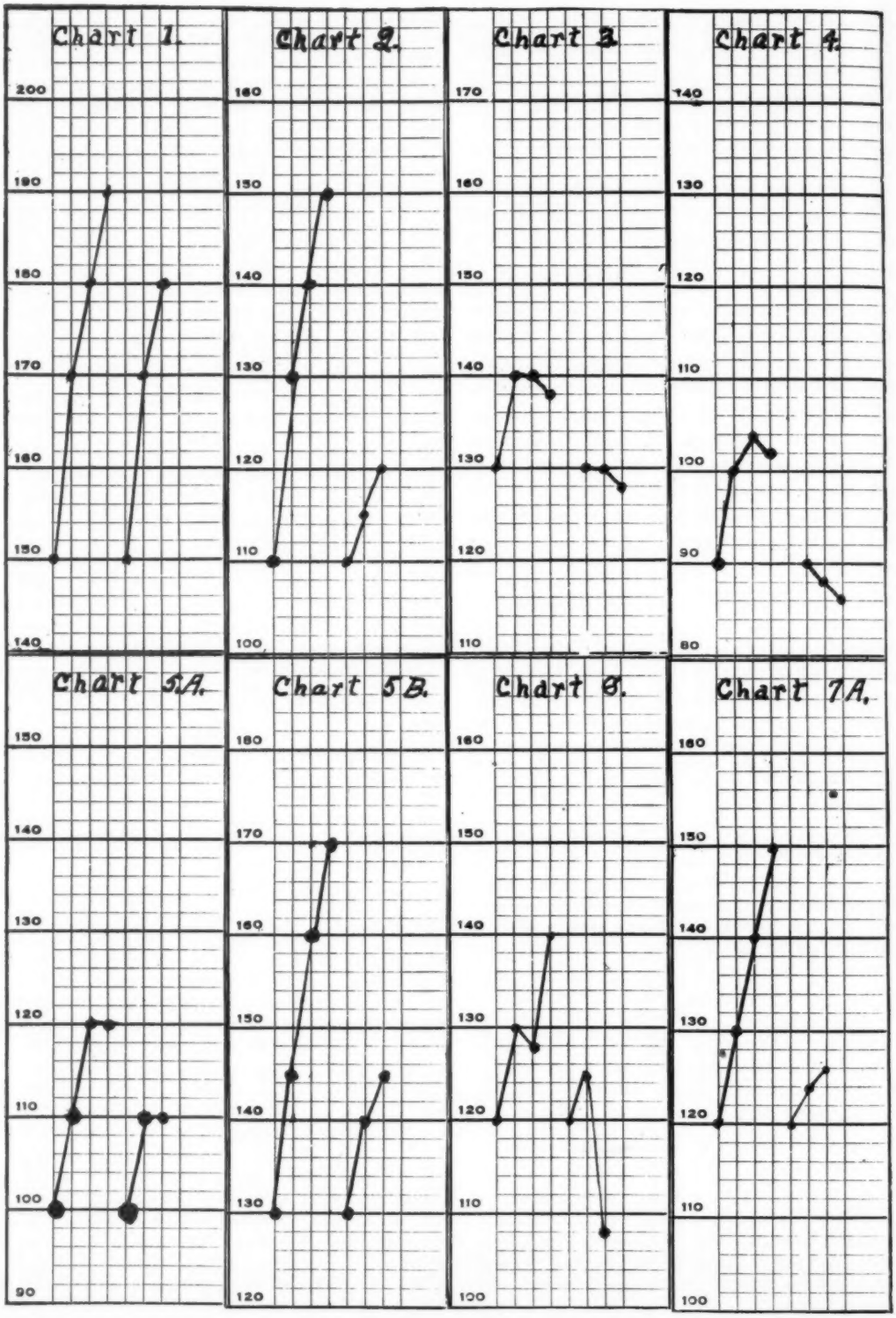
Chart 1.
200
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Chart 2.
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Chart 3.
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Chart 4.
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Chart 5A.
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Chart 5B.
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Chart 6.
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Chart 7A.
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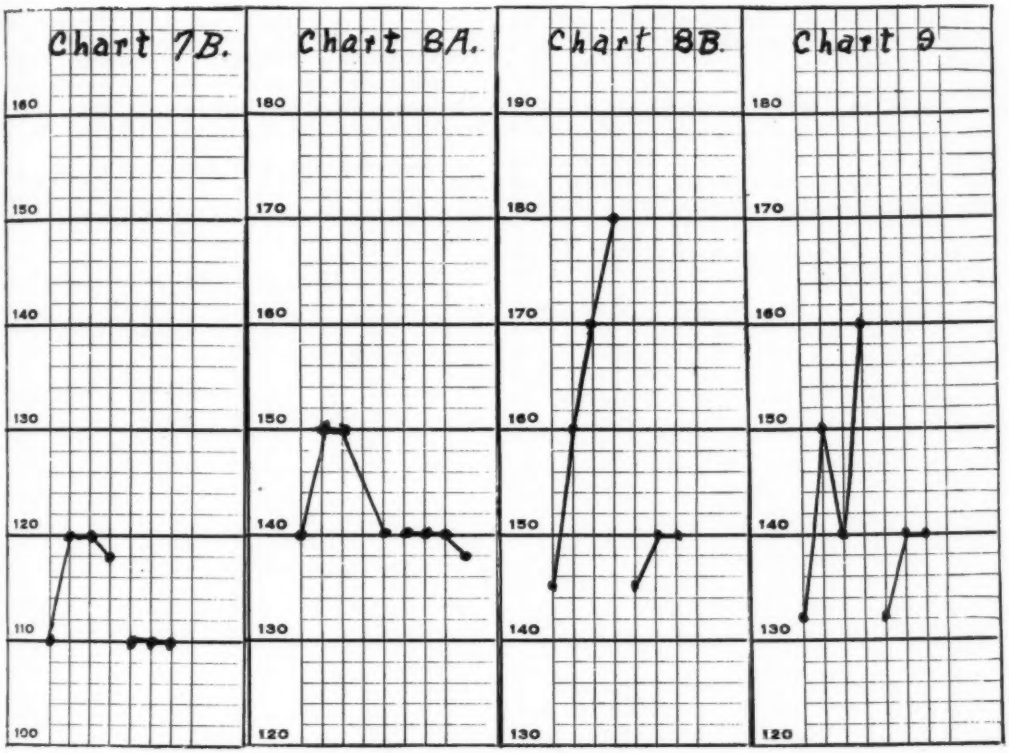

"caught a cold." He consulted me for cough and a general feeling of lassitude, but I conscientiously believe he is alive today, because the cardiac weakness was recognized by means of this test and he was cautioned against over-exertion.

Case IX (Chart IX, A.). J. H. W., aged 54, consulted me for attacks of syncope. There was no dyspnea or other subjective symptoms of cardiac weakness. The cardio-respiratory test first attracted attention to his cardiac weakness, a partial heart block later being demonstrated by the electro cardiograph. Treatment of his heart has resulted in perfect health today.

Comments on Charts

Chart 1. C. E. McG., age 32, weight 123, height 5 ft. 7¼ in., date 8/12/25.

Blood Pressure and Pulse		Vital Capacity 280 cu. in.
Before Test	After Test	Capacity Blown
Systolic.... 140	Systolic.... 155	260 cu. in.
Diastolic.. 90	Diastolic.. 100	270 "
Pulse rate 100	Pulse rate 112	280 "

Heart: Hypertrophied, but compensated. Loud systolic blow at apex, transmitted to base and up axilla. Transverse cardiac dullness 16 cm. Apex beat at mammary line.

Comment: Response excessive with ascending base line. Good operative risk, but poor insurance risk. Myocardial tone good.

Chart 2. M. P. B., age 48½, weight 153¼, height 5 ft. 4¼ in., date 5/3/27.

Blood Pressure and Pulse		Vital Capacity 240 cu. in.
Before Test	After Test	Capacity Blown
Systolic.... 110	Systolic.... 120	225 cu. in.
Diastolic.. 60	Diastolic.. 60	240 "
Pulse rate 80	Pulse rate 76	240 "

Attacks of tachycardia. Highly neurotic; had been told he had "myocarditis," after electrocardiographic tracings had been taken.

Heart: No enlargement. Transverse cardiac dullness 14 cm. No murmurs, and pulse regular.

Comment: Response normal in every respect with ascending base line.

Chart 3. L. G., age 49, weight 227, height 5 ft. 11¾ in., date 10/15/26.

Blood Pressure and Pulse		Vital Capacity 240 cu. in.
Before Test	After Test	Capacity Blown
Systolic.... 128	Systolic.... 128	225 cu. in.
Diastolic.. 80	Diastolic.. 80	225 "
Pulse rate 84	Pulse rate 80	240 "

Heart: Enlarged. Transverse cardiac dullness 17 cm. Extra systole every 3rd or 4th beat. Cardiac sounds distant. No dyspnea or other signs of decompensation.

Comment: Response to strain very weak and a long interval before return of sound between each step. Subsequently patient developed definite signs of decompensation.

Chart 4. J. W. W., age 50, weight 163¾, height 5 ft. 6¼ in., date 9/29/26.

Blood Pressure and Pulse				Vital Capacity 240 cu. in.
Before Test		After Test		Capacity Blown
Systolic....	92	Systolic....	92	255 cu. in.
Diastolic..	60	Diastolic..	60	240 "
Pulse rate	84	Pulse rate	88	225 "

Heart: Slightly enlarged. Transverse cardiac dullness 15 cm. No murmurs, but sounds distant. Emphysema and history of asthma.

Comment: Poor response, and with falling base line suggestive of myocardial insufficiency.

Chart 5a. B. F. T., age 62, weight 185, height 5 ft. 8½ in., date 2/24/26.

Blood Pressure and Pulse				Vital Capacity 195 cu. in.
Before Test		After Test		Capacity Blown
Systolic....	110	Systolic....	106	195 cu. in.
Diastolic..	70	Diastolic..	70	195 "
Pulse rate	88	Pulse rate	88	195 "

Heart: Enlarged to right. Apex beat inside mammary line. Transverse cardiac dullness 16 cm. No murmurs, but sounds are feeble. Subjective symptoms of myocardial insufficiency.

Comment: Poor response but no fall in base line. Suggestive of myocardial insufficiency.

Chart 5b. B. F. T., age 62, weight 185, height 5 ft. 8½ in., date 3/21/27.

Blood Pressure and Pulse				Vital Capacity — cu. in.
Before Test		After Test		Capacity Blown
Systolic....	130	Systolic....	135	285 cu. in.
Diastolic..	80	Diastolic..	80	285 "
Pulse Rate	80	Pulse rate	80	285 "

Same as 5a, after one year's treatment of his heart.

Heart: Transverse cardiac dullness 17 cm. No murmurs. No subjective symptoms of cardiac failure.

Comment: Response to strain is normal with ascending base line.

Chart 6. W. H. D., age 46, weight 131¾, height 5 ft. 11¾ in., date 6/7/26.

Blood Pressure and Pulse				Vital Capacity — cu. in.
Before Test		After Test		Capacity Blown
Systolic....	108	Systolic....	108	300 cu. in.
Diastolic..	80	Diastolic..	80	280 "
Pulse rate	84	Pulse rate	88	270 "

Heart: Not enlarged. Apex beat at mammary line. Transverse cardiac dullness 14 cm. Pulsus alternans. Soft systolic murmur heard over ensiform cartilage and not transmitted.

Comment: Medium response to strain and falling base line suggestive of myocardial weakness. Patient has since developed more pronounced symptoms of cardiac failure.

Chart 7a. W. O. H., age 60, weight 150, height 5 ft. 6¼ in., date 3/9/25.

Blood Pressure and Pulse				Vital Capacity — cu. in.
Before Test		After Test		Capacity Blown
Systolic....	120	Systolic....	130	240 cu. in.
Diastolic..	75	Diastolic..	80	210 "
Pulse rate	64	Pulse rate	64	225 "

Heart: Normal in size and rhythm. No murmurs audible.

Comment: A normal response with ascending base line.

Chart 7b. W. O. H., age 62, weight 150, height 5 ft. 6¼ in., date 5/5/27.

Blood Pressure and Pulse				Vital Capacity — cu. in.
Before Test		After Test		Capacity Blown
Systolic....	110	Systolic....	116	160 cu. in.
Diastolic..	80	Diastolic..	80	140 "
Pulse rate	76	Pulse rate	72	150 "

Same as Chart 7a.

Comment: Poor response with stationery base line suggests myocardial weakness. There is also great reduction in vital capacity since first test in 1925.

Chart 8a. J. B. S., age 63, weight 236, date 4/3/28.

Blood Pressure and Pulse				Vital Capacity — cu. in.
Before Test		After Test		Capacity Blown
Systolic....	140	Systolic....	138	120 cu. in.
Diastolic..	90	Diastolic..	90	110 "
Pulse rate	120	Pulse rate	130	120 "

Has been under personal observation for past 13 years and came for periodic physical examination, complaining only of slight cough and languidity.

Heart: No enlargement and no murmurs. Tachycardia and extra systoles every 3rd to 5th beat. Alternating systolic blood pressure.

Comment: Incomplete response and falling base line denotes failing heart muscle. Electrocardiographic tracing: Auricular fibrillation. Ventricular extra systoles. Left ventricular preponderance.

Chart 8b. J. B. S., age 63, weight 236, date 7/6/28.

Blood Pressure and Pulse				Vital Capacity — cu. in.
Before Test		After Test		Capacity Blown
Systolic....	145	Systolic....	145	180 cu. in.
Diastolic..	90	Diastolic..	90	180 "
Pulse rate	76	Pulse rate	76	195 "

Same patient as represented in Chart 8a, run during periodic physical examination.

Heart: Normal in size and rhythm. No murmurs and systolic blood pressure regular.

Comment: A normal response. No evidence of myocardial weakness.

Chart 9a. J. H. W., age 58, weight 206, height 5 ft. 7 in., date 2/25/27.

Blood Pressure and Pulse				Vital Capacity — cu. in.
Before Test		After Test		Capacity Blown
Systolic....	132	Systolic....	135	180 cu. in.
Diastolic..	80	Diastolic..	80	190 "
Pulse rate	76	Pulse rate	80	190 "

Heart: Cardiac dullness slightly increased over normal. (5 and 15 cms.) No murmurs but heart sounds distant and indistinct.

Comment: This response is abnormal, but the long pause before reappearance of auditory beats after each test is strongly indicative of myocardial weakness. E. C. G.—Inverted "T" waves in third lead. Suspicious evidence also of partial heart block.

SUMMARY.

(1) The Dwight-Frost Cardio-Respiratory Test is a valuable aid in the diganosis of myocardial insufficiency. (2) For this purpose Steps 6, 7 and 8 of the test, are deemed sufficient, and a modification of the original technic is proposed. (3) A poor response to respiratory strain in 6, 7 and 8, with a falling base line is considered suggestive of myocardial weakness. (4) Case reports with accompanying charts on patients followed over periods of a year or two, demonstrate that the response to the cardio-respiratory test is in proportion to other definite signs of myocardial weakness. (5) The test should be of value to the anesthetist in evaluating operative risks.

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THE CONSIDERATION OF THE PSYCHIC FACTORS IN PHYSICAL DISEASE*

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How often is the surgeon, the internist or the general practitioner called to see a case and find himself confronted with an individual whose predominant symptoms are mental? Then again, just how often has he failed to recognize the underlying mental or emotional state of his patient? These are every day occurrences met by the physician, whether he be a specialist or general practitioner and are of vast importance in making his diagnosis and instituting proper treatment.

In the care and treatment of any disease, either physical or mental, the psychologic aspect should be carefully considered. Every physician should know just how a patient feels towards himself and his trouble. Since the practice of medicine has been divided into the many specialties, there is a tendency to lose sight of the patient, especially his psychologic make up, and treat only the diseased part involved. It is a very common occurrence for the internist to say to his patient who has consulted him for an abdominal pain, "You had better see a surgeon regarding this

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trouble" or "An operation will most likely have to be performed." If the trouble is purely psychogenic, you have only helped the patient to establish, in his mind, a fixed pathological condition where none exists and hindered materially the prognosis of an early recovery.

The failure to recognize the psychic element in disease has provided the means for the different cults to thrive. The patient desires relief and, if his physician does no accomplish this, he then seeks aid elsewhere.

Why are the mental symptoms so often overlooked? Simply because the busy practitioner does not give his patient sufficient time to elicit the psychogenic nature of their trouble. In this day with specialists and laboratory facilities at our disposal, we get away from the individualism and personality make up of the patient and expect him, after he has gone through the mill, to come out a finished product. It is necessary to spend sufficient time to allow the patient to unburden himself of his life's history that the physician may gain a true insight into his emotional sphere and the stress that probably is being encountered. Every physician, whether he be surgeon, internist or specialist, should familiarize himself with psychology and psychotherapy. It will frequently be found that, through these channels, he will, in many cases, hasten the recovery of his patient and often prevent harm by misdirected therapy. Deep rooted complexes are brought to the surface by allowing sufficient time for the patient to tell his trouble, especially if the physician is a sympathetic listener, and many conflicts that have proved a hindrance are removed.

The nervous system is intricately connected with the human organism. The cerebral cortex is regarded as the location of the mind, which is the power that governs the personality. The emotions have definite influence on the many organs of the body. Cannon has shown that the signs of emotional disturbances are due to the actions of the sympathetic nervous apparatus upon the viscera. By his experiments on animals, it was demonstrated that there were many changes in the body caused by emotions; the digestive secretion, the heart's action, the blood sugar, etc., was influenced materially by pain, hunger, fear and rage. Other investigators have shown that mental and emotional states can influence the leukocytic count. Numerous reactions are commonly noted during the different emotions; such as, tremors, increased perspiration, diminished salvary secretion, laughter, tears, etc.

There are two main factors of the nervous system; namely, excitation and inhibition. Excitation increases neural function while inhibition decreases or represses neural function. These antagonize each other and are necessary for all psychic and somatic functions. In the mental life, these two factors determine one's reaction to his environment. Throughout life, these forces are constantly at conflict and, from it, result many complexes, which are repressed, giving rise to personality changes, psychic dissociations, etc. These repressions are responsible for the many psychic manifestations, such as fears, phobias, anxieties and obscessions noted in the psychoneurotic. They may also simulate somatic conditions, and it is in these cases that the physician is most concerned. If the symptoms are vague and ill-defined, the psychic element is easily discovered, but frequently they simulate definite pathological disease, especially is this true when referred to the abdominal viscera. An operation in such cases would be of no benefit and in all probability would give rise to additional symptoms. Not infrequently does it happen that the psychic element is complicated by a somatic disease, in which case, the somatic condition must be treated before the psychic element can be removed.

I had a female patient admitted to my service complaining of pain in the chest, difficulty in breathing, being "unable to take a deep breath," cough, anorexia, and lassitude. Thorough physicial examination failed to disclose any findings to account for the symptoms. The history revealed the fact that the patient had nursed her mother for many years, who had died with tuberculosis. This was evidently a transferrence of an emotional state into a bodily symptom. After the condition was explained to the patient, recovery was rapid and she was able to return home to her former occupation after a short stay in the hospital.

Careful examination frequently discloses some delusional idea to account for the physical findings. One of my patients was noted to drink enormous quantities of water during the day and many times during the night, with a corresponding increased amount of urine voided. It was though that she was suffering from diabetes insipitus and this condition was responsible for the apparent thirst. Her reticence in answering questions regarding this condition caused me to become suspicious, but after repeated attempts, it was found that she was under the delusional idea that her spine was filled with insects and she drank water to drown them.

Not only do the psychoneurotics display many somatic symptoms, but frequently the early symptoms of dementia precox and other mental diseases are of the neurasthenic type, such as gastric disturbances heart disease, etc. The following case is a good example of the neurotic symptoms in a beginning precox:

Case 1. A white male, age 26 years, was admitted to the Hospital September, 1926. There was nothing of note in his early life. He had progressed normally in school, and manifested the usual interest in school and social activities. After leaving school, he worked regularly and held positions fairly well until three years before admission. There was no history of alcoholic excesses, drug addiction or immorality. Three years before coming to the hospital, he had his tonsils removed. He claims to have been unable to work for three months after the operation; and for the following six months he could work only part of the time, due to his invalidism. During this time, he consulted many doctors for his various troubles, and claims to have taken much treatment for "bladder trouble." He then developed a "pain in the left side of his chest." He tells of this pain leaving his side and "going to his intestines.' One year before commitment, an appendectomy was performed and since that time he has been unable to work at all. He still continued to be weak, complained of many abdominal pains and noticed that he walked in a "strange way." When presented at the staff, nothing could be brought out except many somatic complaints with no pathology. His symptoms were mainly those of psychoneurosis, neurasthenic type. With hospitalization, he was benefitted materially and it was thought that he could make a satisfactory adjustment at home and was furloughed December, 1926.

Social service reports of the patient while away from the hospital and also reports at the clinic held monthly in New Orleans by members of the staff were to the effect that he was unoccupied, manifested no interest in things about the home, showed a tendency to seclusiveness and, during the latter part of his stay, developed ideas of interference, especially by his neighbors. It was necessary to return him to the hospital. This case is a good demonstration of the neurasthenic form symptoms often seen in early dementia precox. The true nature of the disease is usually overlooked until delusions and hallucinations with mental deterioration develop.

Thus far, mention has only been made of the physical symptoms that are purely psycic. I will now mention a few of the physical conditions that are responsible for psychic manifestations either due to pathological changes or toxemias. I shall not attempt to go into the many physical conditions that give rise to mental symptoms, but will only mention a few with case histories.

TYPHOID FEVER

In typhoid fever, nervous symptoms are commonly noted, but are usually of a mild type, such as stupor, drowsiness, mild delirium, especially at night, and occasionally hallucinations. In the following case, the symptoms at the onset resemble a maniacal psychosis.

Case 2. A white male, age 39 years, a farmer. His habits were good. There was some emaciation. Five days before admission, he was restless and suffered from insomnia. Suddenly, he became excited, untidy and destructive. He suffered auditory hallucinations and developed delusions of persecution. He thought someone was in the room with him, etc. His condition necessitated his being placed in jail. It is reported that he had had a mental upset when a boy, the age at which this upset occurred was not given. Cause of present trouble was given as worry over wife's bad health. At the time he was examined for committment, he was extremely excited and talked incessantly. "He claimed he was climbing walls all the night before and that the physician was killing his wife." When admitted to the hospital, the symptoms were those of a delirium. Complete disorientation, auditory and visual hallucinations and extreme overactivity were noted. It was noted that he had an elevation of temperature. He was transferred to the hospital ward and, during the second week of his illness, the the blood showed a positive Widal reaction. The clinical picture was that of typhoid. After the first week, his mental symptoms were very much diminished in severity and resembled a mild delirium with irritability. The course of the disease was uncomplicated except for the mental symptoms. Temperature reached normal after the third week. From the first week, the mental symptoms gradually improved and, when the temperature became normal, all mental symptoms had disappeared. He was discharged as soon as his physical condition was such that he could leave the hospital.

This case is exceeding interesting from the fact that the mental symptoms masked the true nature of the disease. The mental symptoms of typhoid usually occur during the course of the disease, especially noted at the height of the febrile period or towards the end of a long protracted case. There is no doubt that his predisposition to mental disorders was largely responsible for the suddent appearance of the mental symptoms at the beginning of the infection.

ALBUMINURIA

Case 3. A white female, admitted to the hospital December 22, 1926. She was the mother of one child, two weeks old. About three months before admission, she suffered with headaches, dizziness and dyspnea. Some swelling in her lower limbs was noted. In the early part of December, just before her child was born, while cleaning the house, she became unconscious. The baby was born during the early part of December when the patient was delirious.

Upon admission, she was excited and in order to keep her in bed, it required someone to be with her constantly. She talked incessantly, her conversation being rambling and rarely ever was the end of any thought reached. The content of thought was largely delusioned and of a persecutory nature. Hallucinations were vivid and were both visual and auditory. There was a marked flight of ideas. Upon examination it was found that she was running a 5 per cent albumin in her urine. Treatment was instigated consisting of hot packs and diuretics. After the second week, there was marked improvement in her physical and mental condition. Patient began to notice things about her and talked rationally about different things at intervals. At the end of the third week, her conversations were relevant and coherent and she was able to write letters to her relatives. Her mental condition had improved to such an extent that she was practically clear.

She claims that, during this delirium, "she thought her baby was being killed and she could see people harming her, and thought she was to be killed herself." There was a period of time during which she could not recall any occurrences. Many occurrences appeared to her like dreams, and about these she was not certain. Urinalysis showed gradual diminution in the albumin content and only a faint trace was noted at the time patient's mental condition was clear.

By February, she had recovered, and repeated urinalysis showed the urine to be free of albumin. She was discharged from the hospital in March.

This is a case of a psychosis accompanying a functional albuminuria due to pregnancy. The mental symptoms throughout the course of this disease were very marked from the onset, and were present for a period of about six weeks. The marked psycho-motor activity with flight of ideas resembled a manic episode. As the percentage of albumin in the urine decreased, the severity of the mental symptoms diminished. The psychic manifestations in this case were purely toxic. After recovery, she showed insight into her upset and recognized her delusions and hallucinations as such.

PELLAGRA

Case 4. Colored male, age 22 years, admitted September 12, 1927. His mental symptoms began a few months prior to his coming to the hospital, and progressed gradually. The initial symptoms were forgetfulness, and wandering aimlessly about. He complained of frequent headaches and pains in the back and legs, being easily fatigued. When admitted, he was so weak that he had to be supported when he walked. All movements were very slow and deliberate, and mental retardation was marked. Questions were repeated and answers were slow, terse and in a low tone. His expression changeless and one of profound depression. During examination, he manifested little interest, although replies were relevant and coherent. There were no demonstrable delusions or hallucinations. He was disoriented, but possessed some insight. He claimed his "mind is confused and it is hard for him to think." He showed the physical signs of pellagra; he was very weak, especially in his lower extremities. There was evidence of eruption about his ankles, on the dorsum of his hands and on his forehead. History of diarrhea before admission. He was given nourishing diet, tonics and brewer's yeast. His physical condition improved rapidly and the mental symptoms gradually disappeared. January 30 he was presented to staff for home going and was found to be clear mentally with perfect insight into his condition.

In the above case, the mental symptoms resembled the depressed phase of manic depressive insanity. Most of the cases of pellagra that I have seen with mental symptoms show confusion, depression and retardation. It is not an uncommon occurrance to see a condition resembling a precox reaction, especially the catatonic type; a maniacal state, or, in fact, the mental symptoms may simulate any psychosis. In our hospital cases, we find that all psychosis may have pellagra associated with them, but without any relation to the mental symptoms. Many cases of pellagra show no mental symptoms at all.

CONCLUSION.

In conclusion, I wish to stress the importance of listening sympathetically to the patient's history of his life, spending sufficient time to allow him to discuss freely his attitude towards his troubles. Always endeavor to establish a relation with the patient that will elicit his confidence, thereby enabling him to disclose complexes that are burdensome. Psychic manifestations in disease are encountered in all classes from the illiterate to the college graduate, and must be studied and considered along with the physical findings; if not, you will fall way short of the mark in restoring the individual and creating harmony within himself that will permit an adjustment in the evironment in which he has to live.

DISCUSSION

Dr. D. H. Keller (Pineville): I consider it a great honor to be asked to open this discussion, and also a great privilege to be present to listen to the paper which has just been read by Dr. Miller, whose years of experience in this institute make him thoroughly capable of presenting this subject in a lucid and interesting manner. I wish to especially compliment the doctor on the fact that he has avoided long Latin words, and has put a psychological subject into such language that the average practitioner of medicine can understand every word and every paragraph. It is something that is not done sometimes by members of our profession.

There are two factors which I would like to stress in this paper. Last night, when we finished hearing our presidents address, we were under the idea that other people make mistakes, but that the regular practitioner rarely does. Now that we are by ourselves, speaking, as it were, "en familee," we can acknowledge that we make mistakes, all of us, and many of us make many mistakes, and Dr. Miller has pointed out two common mistakes that are made.

In the first place, the psychiatirst, the person who takes care of the mind, frequently loses sight of the fact that that mind is associated with the body, and by neglecting the ailments of that body, loses the golden opportunity to cure the mental disease. Then there is the misdemeanor, the mistake that the general practitioner makes, that includes the surgeon, the eye man, in fact, all the other specialties outside of psychiatry. The mistake they make is this, when they treat a person, they treat the body and they forget that that body is associated with the mind. The reason that this is done is as follows:

The mental specialist isolates himself, more or less in institutions, and gets out of touch with medicine as a whole. The medical man, as a rule, is absolutely ignorant or mental diseases. I would suggest two remedies, the one is that every physician, before he be given the right to

practice medicine by State license, be urged or forced to spend at least a few months in some hospital for the insane, so that he will at least learn the nomenclature and the general symptomatology of insanity.

The second thing I would urge that no one begins the specialty of psychiatry until they have served their apprenticeship in the practice of general medicine. Our specialty is the youngest specialty there is. We had surgeons and internists and eye men, at a time when the care of the insane in state institutes was simply custodial, and our state institutions were simply boarding houses. During the last twenty years, especially since the World War, our specialty has come to claim its right in the field of medicine, and more and more will the practice of nervous and mental diseases be recognized, not only as an important part of the field of medicine, but, in time to come, it will be considered as one of the most important parts of medicine.

We recognized the fact that all insane people are not within the walls of a great institution like this, but only a selected few are there. We also recognize the fact that there are very few persons who have absolutely sound minds, and, in the stress of civilization, those few are becoming fewer all the time. So, I would ask all you general practitioners to spend a half hour once a week in reading up on our specialty, and when you have a chance, visit one of our institutions, meet with us in our staff meetings and see if we cannot get together for mutual benefit.

Dr. C. S. Holbrook (New Orleans): It is a great pleasure to me, today, to be back home. For five or six years, I studied psychiatry in this institution, I walked these various corridors, attended the staff meetings, and did a lot of very interesting work. Every department here brings back very pleasant memories. A small cottage on the grounds was built for me in which I spent many very pleasant days. I have had the opportunity of seeing at close range the patients who are in this institution for custodial care.

During the past ten years, I have seen many types of mental disease outside of an institution. There has been many cases that we, as physicians, could prevent from developing a disease so bad that they would have to be placed in institutions, and I think that should be the keynote for us, that we should make every effort to prevent a psychosis or prevent a psychotic disturbance becoming so manifest that the patients become anti-social, or so disturbed that they cannot be treated in any other place except a hospital.

We frequently see the functional disturbance, all of us do, every man here sees people suffering from heart trouble, when there is nothing wrong with the heart; or we see them suffering from stomach trouble, when their stomach itself is perfectly normal. The mere fact that we tell these people that there is nothing the matter with their hearts, nothing the matter with their stomachs, does not help; and to tell them that they are "nervous" and "not to worry" and "to think about something else," that again does not help.

The psychotic should have just as careful attention in the handling and should require as many visits, as people suffering from other diseases. The patient with a heart syndrome is not at all satisfied when he is told that it is all imagination, he knows there is something wrong with him, he feels that way about it, and if you tell him that it is imagination, he knows better, and he is going to go and see some other doctor.

But, one can go into the analysis of the situation, not a psycho-analysis, but a simple analysis in which one is willing to listen to the patient, how the trouble began, on several occasions, seeing the patient possibly every day for three or four days, and thus get at the mechanism of his disturbance. A great deal can be done then in giving him an explanation, of telling him how these things develop and the patient will then be able to resume his normal life.

I have in mind just a case that will illustrate this point. There was a school teacher who had been in bed for four months in New Orleans. She was seen by various men, they all knew she had nothing wrong with her heart, but she could not breathe comfortably, and she could not get around at all. A simple analysis that extended over three or four weeks was sufficient to have her back in school.

Dr. W. J. Otis (New Orleans): Constructive medicine teaches that you cannot separate the psychic from the physical, every physician should acquaint himself of that fact. The neuropsychiatrist in preparation for his specialty has already laid the foundation in clinical medicine by intensive post-graduate work and study. His diagnosis as a rule is made by exclusion. Quite true, these patients have concomitant illnesses that we do not deny but rather expect, these should be treated along with their psychic factors and their conduct reactions. I do not see how anyone can practice medicine who does not coordinate the psychic and the physical, as well as the spiritual.

Dr. E. McC. Connelly (New Orleans): I do not know that I have so much to say, but I was very glad to hear Dr. Miller's paper. I think we ought to request him to go upstairs and read it to the surgical section, it would do most all of us good.

At the risk of repeating, I would like to emphasize what Dr. Otis has said, in regard to the simple assurance of these patients that they have no physical condition the matter with them. I would like to see the word "Imagination" eliminated from the vocabularly of every physician and everybody else who speaks the English language.

The patient, when he gets to the neuropsychiatrist, after having passed through innumerable hands, has "Imagination" on his shoulder, and the minute anybody attempts to go into the matter, if it is of any length at all, he will meet you with all the antagonism in the world. "I know, you are going to say, it is 'imagination'." I think all of us have had that experience.

From another angle, Dr. Miller's paper brings out a point to be emphasized and considered. It struck me, when he recited his cases, of what a pity it was that these patients, suffering from transient conditions, should have had to go to an insane asylum to get the proper attention and care. If the men, who saw them first, had recognized the fact that physical conditions frequently produce psychic symptoms, they may have been saved that stigma. It is fortunate for the patient, of course, to have the hospital to come to, but, on the other hand, there is not any question but what the patient, leaving a mental hospital, does have a certain handicap that will follow him for a good many years to come, I mean from an economic as well as a social standpoint, and it would seem a pity for it to be necessary for them to come to a state hospital for treatment that probably could have been given somewhere else.

Dr. L. L. Cazenavette (New Orleans): Dr. Miller's paper is entitled, "The Consideration of Psychic Factors in Physical Diseases." I think that we should consider also the physical factors in psychic diseases. There is no doubt that many psychic manifestations are due directly or indirectly to physical or organic diseases, just as Dr. Holbrook has said. These conditions are met with more frequently in patients of advanced age suffering with cardiac or renal insufficiency, sometimes both. Such patients feel very sick and know there is something seriously the matter with them. They finally develop a true anxiety neurosis. It is for the relief of this latter condition that they may consult you. It behooves us therefore to make a thorough physical examination before a diagnosis of nervous or psychic condition is made.

Dr. T. J. Perkins (Jackson, La.): The importance of physical relation to psychic conditions is so great at this hospital that, in every case that enters the hospital, the patient is run through a complete clinic. First, there is a complete laboratory examination of his blood, urine, sputum and spinal fluid, if necessary. For there, he goes to the dental department, where he has a complete inspection of his teeth, and, if necessary, transillumination and roentgen-ray examination of his teeth. From there, he goes to the eye, ear, nose and throat department, where we get a report on the conditions of his ears, eyes, nose and throat. Fourth, the general psychiatric and neurological and physical examination is made.

I think Dr. Miller's paper is timely, when so many patients, as Dr. Connelly has called your attention to, enter the hospital, suffering from a transient toxic condition, and however unfortunate it may be, there is a socialogical and economic stigma attached to every man who enters a state hospital. Not only the medical profession, but society at large, should be taught that it is no more a stigma to suffer from a mental condition than it is to suffer from a physical condition; and many of the physical conditions are more of a stigma to the individual than any of the psychic conditions, save those due to social diseases.

Dr. Jno. N. Thomas (Pineville): I have listened with a great deal of interest and pleasure to Dr. Miller's paper and discussion by members of the profession here. I am going to be very brief in my remarks.

The treatment of nearly six thousand cases of mental diseases in the Central Louisiana State Hospital at Pineville has convinced me that surgical operations for mental afflictions pure and simple, are a very rare necessity. In one of the great institutions in this country, in New Jersey, the superintendent there has been using surgery to a large extent for the treatment and curing of so-called mental diseases, most of these cases belong to the praecox group. I do not know, and cannot recall from talking to him and members of his staff, that there has ever been a case benefited.

I will just mention an instance that will illustrate: "The daughter of a Yale professor was first treated by a local physician in Connecticut, then sent to Dr. Floyd Haviland, one of the greatest psychiatrists in the country, for examination and diagnosis. Dr. Haviland examined the young woman and made a diagnosis of dementia praecox of the hebephrenic type. The professor said, "Oh, no child of mine could have dementia praecox. I am going to send her to Doctor Cotton's institute in New Jersey."

The girl was sent there, a perfect physical specimen, and the first thing they did for her was to pull her teeth, all good teeth, pulled them all out, no results. The next thing was to take her tonsils out, without results, and the next was to resect a portion of the colon, without results except death.

There is rarely, in my opinion, necessity for surgical interference in these cases of mental diseases. I feel that confinement in an institution, with proper care, and they can only be cared for in institutions that are properly fitted for their treatment, this, with time and care, will usually rectify the disturbance and bring about restoration, if it is possible.

Dr. J. A. O'Hara (New Orleans): I did not expect to accept this pleasure today, but I had the benefit of sleeping last night in this institution, and I feel as though I ought to say something about this institute.

As a member of this body, I want to first say to you gentlemen that if there is any organization in the State of Louisiana that stands out in bold relief in our work that is being done for the care of the insane, it is the two institutions in the State of Louisiana. There is nothing being neglected, absolutely nothing. When a patient enters this institution, they begin at the very beginning, where they should begin in our offices, and go down to the last point.

But, unfortunately for the medical profession, they look upon the brain specialists as a little above a chiropractor. In the last few years, however, we have fooled you, because we have found out that the brain is on the top end of the spine, something you have all neglected, and as Doctor Miller has so closely called to your attention.

Now, I do not think there is any profession in the world, especially in the medical line, that we need to offer any apology for, but there is none in the last ten years that has gone so far and so fast as the study of brain diseases, and it is institutions of this kind that enables the physician to go ahead.

Dr. Miller's paper, read by Dr. Miller, should be read before every man in the medical profession, for I do not know of any place in the medical profession where so much sympathy should be given as to the individual who is suffering from mental trouble, who comes into your office. He comes in there absolutely the last end of the scrapping from the medical profession, and, as I was going to suggest, when you take into consideration the thing which you first should remember in examining your patients is the fact that he has a mind; that nobody can have a disease any place in their whole anatomy unless it is increased by his mental condition, when you take into consideration that the cells of the brain are indestructible, that they do not yield to exhaustion of any kind, that the chemical equilibrium is only upset by toxic matters, therefore, when you have a patient come in with a pain some place in the body, it is your duty to dig down and find where that pain is coming from, and you will find that a great deal of it is emotional, and the emotions and the high centers of the brain cover every bit of cerebral cortex, and overflows into every other section.

I am going to ask you, as members of this body, today, for this fact, give the insane that which is due them, give them proper examination they are entitled to before they get to the mental specialist, and if you find their emotions are too great for you to handle, send them to Dr. Miller or Dr. Perkins, or let Dr. Connelly have them, give them to Dr. Otis, send them to some of those men who can handle them, and do your duty to mankind. I thank you.

Dr. C. S. Miller (closing): I wish to thank the doctors for their generous discussions of this paper, and will only say just a few words in closing.

As several of those who have discussed it have brought out the importance of mind in connection with the body, we have all noticed, in our hysterical individuals, many a varied symptom, all of which are of a defense reaction, and with the proper going into the life of the patient, there can very often be found the trouble that is responsible.

In general practice, most all of us have seen the influence of the emotional state, for instance, in a diabetic, we have known them to encounter some emotion in which their blood sugar would run up; and in dealing with all cases, we should not forget to carefully look into the psychic as well as the physical complaint. I thank you.

THE CAUSE, PREVENTION AND TREATMENT OF PUERPERAL INFECTION*

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I almost feel like apologizing for presenting a paper on such an old subject. There have been volumes written on it, but the high morbidity and mortality clearly indicate that it is still a live subject, vital to the physician as well as to the patient. Goodrich states in an article that one woman in ten has fever during the puerperium; one in forty suffers irreparable damage; and one in four hundred dies in the prime of life, leaving one or more children motherless. Seven per cent of death of women between the ages of 20 and 40 years are due to puerperal infection. Asepsis did more for the pregnant woman than for any other class of patient. Statistics from well conducted maternity clinics and hospitals have their morbidity. There are several explanations for these infections. The most common is the presence of pathogenic organisms in the cervix and the vagina of apparently perfectly normal women. Many who have spontaneous deliveries without examination develop puerperal infection. From 40 to 50 per cent of these cases show streptococci in the birth canal and about 4 per cent show that of the hemolytic type. Another explanation is the carrying of the organism through the lymphatics and the blood stream from some source of focal infection as the teeth, sinuses and intestinal tract. Dr. Victor Bonney reports a case that emphasizes this point very forcibly. The patient was a young woman whom he was called to see on account of puerperal fever which had followed on the second day a normal, entirely uninterrupted labor, the child and placenta having been born before the doctor arrived. It was the third child and he was informed that both the first and second labors had been followed by high fever and signs of sepsis. On examination Dr. Bonney noticed that although her teeth were perfect her gums were purple and showed marked recession. This condition was a sequela of scarlet fever at the age of thirteen. This had persisted in spite of every treatment except the removal of her teeth, to which she had objected. This attack of puerperal infection proved fatal and it is the belief that it was due to extensive harborage of virulent streptococcal infection around the gums.

If we would check up our cases more carefully I am convinced that we would have a large number of similar cases to report.

I will not burden you with enumerating again the different types of organism that are found in puerperal infection. I would only like to mention the work done by Schottmuller and the recent work done by Otto Schwartz, on isolating the anaerobic organism. In a series of 1913 obstetrical cases Schwartz reported 88 patients with puerperal infection, of which 21 were aerobic, 54 anearobic, and 8 mixed. I believe that the work of Schottmuller and Schwartz will help greatly in the discovery of an antitoxin or vaccine for the streptococcus type of puerperal infection.

PREVENTION.

The ideal would be to start with the prospective mother. Make a careful examination, giving special attention to the teeth, tonsils, sinuses and intestinal tract (chronic appendicitis, gall bladder disease and colitis.) Next, a gynecological examination to eliminate all infection around the birth canal, such as the cervix (endocervical glands) vagina, (Bartholin's glands and Skeen's glands).

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This revives the old subject of medical gynecology. It is my belief that there is too little attention paid to the non-surgical gynecological condition in women.

We should next give our attention to the general health of the patient. A complete blood picture on all cases that show any signs of not being up to par, special attention being given to the estimated hemoglobin and the red blood cell count. All anemic cases should have supportive treatment along the lines of diet, iron and arsenic. I personally prefer to give iron, arsenite and manganese hypodermatically along with tonic doses of the ultra-violet light, bearing in mind the ever present struggle for supremacy between the pathogenic organisms and bodily resistance.

It is rare that we have the opportunity to advise the prospective mother; most cases report to the physician when they are two or three months pregnant. It is my custom to make a routine examination and remove as many sources of local infection as is compatible with pregnancy. Locally I use mild applications to the cervix and vagina to clear the canal of pathogenic organisms. Much can be accomplished by giving the patient written instructions about how to take care of herself, such as advice against taking douches, restricting coitus during the last six or eight weeks, prohibiting tub baths the last two weeks, insisting upon bodily cleanliness and reporting to the physician any unusual discharge. The routine injection of 5 per cent mercurochrome thirty to forty minutes before delivery or examination has been a great factor in lowering my morbidity and, I believe, my mortality. I started using mercurochrome about twelve months ago. In reviewing the literature I find that Mays, of the Methodist Hospital of Brooklyn, first advocated its use in July, 1914, and he reported excellent results. Mercurochrome has several advantages, first, it is non-irritant to the mucous membranes and it is an excellent germicide, easily applied. The disadvantage is that it stains the clothing and linen, but it is only difficult to remove from silk garments. It has been demonstrated conclusively that mercurochrome must be injected thirty to forty minutes before examination or delivery to obtain its maximum germicidal effect.

After miscarriage, or delivery, I bathe the vaginal vault and the whole vagina with 5 per cent mercurochrome.

The patient should be turned on her abdomen as soon as possible following delivery to facilitate vaginal drainage. The vaginal discharge should be examined daily and type recorded, also the level of the fundus of the uterus or unusual tenderness should be recorded. Often these signs, such as a foul discharge, marked tenderness over the fundus of the uterus, or retarded sub-involution will be noticed before there is an appreciable rise in the temperature.

By elevating the head of the bed twelve to eighteen inches and giving ½ c.c. pituitrin every two hours and ergotol, I believe that many cases of puerperal infection will be avoided. It goes without saying that a careful differential diagnosis should be made first. I have had a number of cases that from the history and casual examination I thought were puerperal infection, one especially that developed malaria during the puerperium; repeated blood examinations cleared up the diagnosis, and another who had pyelo-nephritis but showed few organisms in the urine. The urologist did not think the infection was sufficient to account for the high temperature. Tests finally confirmed the diagnosis of pyelo-nephritis. Deep infection of the breast is also often confused with puerperal infection.

TREATMENT.

Treatment of puerperal infection is divided into two stages: first, the acute, fulminating; second, the convalescent and the quiescent stage. Many cases have been weathered through the acute stage and lost by lack of judgment in dealing with the convalescent and the quiescent stage. Dr.

King reviewed the cases handled at Charity Hospital some years ago. I agree with Dr. King, except where there are retained secundines and persistent loss of small amounts of blood, I prefer to give a short gas anesthesia and completely remove the secundines with a sponge holder and swab the uterine cavity with a sponge saturated in 5 per cent mercurochrome. This may be accomplished without an anesthetic. There are two things accomplished: first, hemostasis; second, where there are infected retained secundines the temperature often subsides quickly. Of course, I condemn the curet 100 per cent in these cases. Elevate the head of the bed and apply ice bags to the lower abdomen. Fluids, food and fresh air are essentials. If the patient is unable to retain large quantities of food by mouth, fluids are given either by hypodermoclysis or in the vein. I prefer the Matas drip, alternating with 5 per cent glucose and saline, 1000 c.c. each. It is not uncommon to let this drip run three or four days.

Medication plays a very small part in the treatment of puerperal infection. Narcotics are given only to make the patient comfortable except where signs of peritonitis develop, then large doses of morphine are given to keep the respiration to 10 to 12 per minute. In the very toxic cases small transfusions of whole blood should be given (250 to 400 c.c.), repeated twice daily.

Dr. Young has written much about the use of intravenous mercurochrome. I have given it to a number of cases, but do not advocate the large dose that he gives; I generally start off with 10 c.c. of 1 per cent solution, repeated every day until I get up to the maximum; it has apparently helped some of the extreme cases. Dr. Gilhorn is a great advocate of the use of sterile milk. I am sure I have used literally gallons of it. It has the advantage over meruochrome in that it does not produce such a profound reaction. We are still giving it to our convalescent cases. Dr. Oscar W. Bethea recommends the use of cacodylate of soda three to five grains, intravenously in all septic cases. I have given it to several cases with apparently good results. The advantage is that it does not disturb the patient and is harmless. I have tried several of the streptococcal serums but I am not ready to give a statement as to their merits, although I believe that the laboratories will ultimately solve the problem.

The next point I want to mention, though it is not treatment but so closely allied to it that I think it opportune to mention it here, is frequent examination of the patient, keeping in mind the possibilities of pelvic abscess, arthritis, pyelitis, endocarditis and pneumonia. Many times the pelvic condition will subside and the temperature is kept up by these complications. Of course, pelvic abscess is a common complication of sequela. Vaginal drainage, properly performed, acts almost like magic.

Convalescents constitute the second class. Many women report to the office, gynecological wrecks, giving a history of their trouble starting after a miscarriage or childbirth. Of course, we cannot forget about the gonococcal infection and here we must make a differential diagnosis between gonococcal infection and puerperal. As a rule, the gonococcal cases will clear up after a few weeks in bed, hot douches and ice bags, but this is not always true in puerperal. The puerperal cases should remain in bed as long as they run temperature and then should be observed with the routine orders of hot douches, glycerine and ichthyol tampons.

I do not believe they should be discharged or told to return in 4, 5 or 6 months, but a definite, regular regime of treatment should be outlined for them, just as we do for a case of syphilis.

The following requirements should be met before considering surgery:

1. Normal temperature.
2. Normal blood count.
3. Sedimentation time, one hour or over.

4. Normal temperature for twenty-four hours after a drastic vaginal examination.
5. Marked diminution of pain and tenderness.

Inasmuch as the sedimentation test is not universally used in this section it is probably timely that I say something of its merits as a diagnostic and prognostic test in pelvic infections.

SUMMARY.

We do not believe the sedimentation test should replace the total and differential blood counts where it is practical to run both. But if we had to choose between the two would prefer the sedimentation test on account of its accuracy in all classes of cases and its simplicity. No pelvic inflammatory case with a sedimentation time of less than an hour should be laparotomized. It is preferable that the sedimentation time should be an hour and a half or two hours. Dr. Polak, of Brooklyn, is very enthusiastic over the sedimentation test and is convinced that it is the most dependable test as to the real condition of the patient. We have adopted the Linzemmeier technic, which is as follows: the tubes used are made of hard glass, five mm. in diameter and 6.5 cm. in length, having a capactiy of more than 1 c.c. They are marked at the 1 c.c. point and also at the 18 mm. point. Lately the 6, 12 and 24 mm. marks have also been added. These tubes together with a 1 c.c. hypodermic syringe with 0.1 c.c. divisions complete the outfit. It is important that both tubes and syringe be clear and dry. Two-tenths c.c. of a 5 per cent solution of sodium nitrate is drawn into the syringe, to which is added 0.8 c.c. of blood drawn from one of the superficial veins of the arm, making the total contents of the syringe 1 c.c. The blood solution and the citrate solution are slowly mixed and then transferred to the tubes. The marginal level in the tube must be exactly at the 1 c.c. mark. The reactions are tested at room temperature since it has been found that in the incubator the rate of sedimentation was hastened, while the reverse took place when the patient's stomach is empty, as acceleration of the rate may be caused by active digestion. The time is noted when the line of demarcation between the erethrocytes and the plasma reaches the 18 mm. mark. A millimetre reading may also be taken at the end of the first hour. With blood therefore that sediments rapidly the results can be ascertained in a short time.

DISCUSSION.

Dr. A. Jacobs (New Orleans): I would like to say a few words concerning prophylactic treatment in puerperal infection, also regarding treatment of the cervix. Many women have a slightly eroded cervix and after delivery, when there is an accumulation or discharge from the uterus, this mixes with the acid vaginal secretions and the exposed injured mucosa becomes infected, with consequent toxic absorption and high temperature. In a great number of cases I have avoided infection by promoting free drainage; this is effected by merely elevating the head of the bed and turning the patient on her abdomen.

In the pre-partal treatment of these cases I do a light cauterization, not of the endocervix, but just over the lip, with 10 per cent silver nitrate, or a very light cauterization with the actual cautery (never deep), which sometimes it is necessary to repeat. If you are light on the cautery there will be no precipitation of labor.

Just a few words about intravenous infusion. Dr. Miller of Indiana, who has treated several thousand of these cases, employing various therapies such as aniline dyes, colloidal substances, foreign proteins, the small transfusion of whole blood, etc., finds that the best results are obtained by repeated small transfusions of blood.

I do not agree with Dr. Sellers on the question of removal of retained secundines. The only time that we are allowed to enter the uterine cavity, I think, is in the case of profuse hemorrhage: intrauterine manipulation merely opens up avenues for the invasion and harboring of microorganisms. I believe these cases should be resuscitated and given pituitrin and ergot.

I am very much interested in the sedimentation test and glad Dr. Sellers mentioned it to you, particularly those who are gynecologists and obstetricians. The test is easily done and is of inestimable value in determining the presence of infection and enabling us to get a safe time for operation. If infection is present the sedimentation test will be rapid. We all know that it is possible to have quite a considerable inflammatory reaction in the pelvis without increase in

temperature or a high leukocyte count: in this event the sedimentation test is rapid and if you disregard its warning you will have either a very stormy convalescence or death. I have used the test for four years—in fact, use it routinely in all my cases. In the beginning I disregarded it, depending on the tests on which I had previously relied, viz: normal leukocytes and a lack of rise in temperature after one or two bimanual examinations.

Dr. L. A. LeDoux (New Orleans): In the majority of cases of puerperal infection we find evidence of an injury, or laceration of the vaginal fornix, or in the cervix. The blood supply of the uterus is very profuse, particularly at the base of the broad ligaments and cervix and pathogenic organisms enter the blood stream through these lacerations. The uterus, under ordinary conditions, is resistant to infection. If we check our normal cases against those with lacerations we will find the incidence of infection higher in the latter. Repairs following labor go a long way towards diminishing infection, so it is a wise procedure to insert a speculum in the cervical canal after delivery and repair all lacerations. By closing the door against invasion of bacteria we minimize the chances of infection and assist in preventing extension.

This subject is interestingly dealt with in a recent issue of "The Lancet." In London Obstetrical and Maternity Hospitals and in French Hospitals they are attempting to immunize patients before delivery with mixed streptococcal vaccine; it is believed that in this way a certain amount of immunity can be given these patients.

Dr. A. J. Comeaux, (Youngsville): I agree with Dr. LeDoux in regard to the way infection travels in a lacerated cervix and wish to mention two cases which I treated along the lines he suggests.

I delivered a woman and three or four days afterwards she developed chills and fever; the next day the same thing occurred. On the second day I inserted a speculum and swabbed the cervix with iodin. The following morning she still had fever. The treatment was repeated. In the afternoon another physician was called in consultation and I told him what I had done. He diagnosed the case as infection and very severely condemned the treatment with iodin. He was an older man and I said nothing to him, but thought: "I will show you something old man." He told my patient, whom he knew: "Elaine, you are going to be sick about six weeks, possibly more, I cannot say how long, but you will get well." I kept the case and the next morning her husband, who came in to report on her condition, said: "Doctor, my wife is doing well and is without fever." From that time she was absolutely afebrile.

Previous to this, I had another case which was handled in the same manner and with the same success. I believe that we would have fewer infections if an antiseptic, either mercurochrome, carbolic acid, or nitrate of silver was applied to the cervix after delivery.

Dr. Joseph Cohen (New Orleans): In reference to puerperal sepsis, I would like to emphasize a couple of points. A good many women will develop puerperal infection no matter what is done for them. As a rule most obstetricians take all kinds of aseptic precautions, whether the delivery is at home or in an institution. This condition is the result of something inherent in the patient. An obstetrician may employ the same method in a hundred cases and despite the most careful asepsis, of these a certain number will develop puerperal infection. To illustrate this, Dr. Bendel told me of an obstetrical case he had in the country. Called out hurriedly, he rushed to the house on horseback and delivered the patient without taking time to wash his hands. She had an uneventful puerperium.

I agree with Dr. Jacobs that in these cases cleaning out the uterus is contraindicated. We should look upon the uterus as "no man's land," something to be let alone. Taking out retained secundines opens up new avenues of infection; the removal of the endometrium simply creates fresh bleeding points.

Repairing lacerations is like "closing the stable door after the horse has left"—they might as well be left alone. Many patients have elevated temperature a few days after delivery and get well spontaneously. We should not blame ourselves too much for the puerperal infection some of our patients get, but in the meanwhile let us continue to do our best to asepticize and employ the means at our disposal to safeguard against it. Perhaps vaccine, pre-delivery, will help.

Dr. T. B. Sellers (closing): I thank the doctors who have discussed my paper.

The comments of Drs. Jacobs and Cohen in regard to the removal of retained secundines are in accord with the opinions voiced by many of the best authorities. Despite opinion to the contrary, however, I recommend, in some of these cases, removal of the products of pregnancy with a sponge holding forceps: if this is done gently I do not think there is ever any ill result therefrom. I have had many cases where this procedure was followed by an immediate drop in temperature and in my experience I know of no instance where the trouble could be attributed to this measure. I do not advocate it though as a routine practice.

UTERINE HEMORRHAGES AND THEIR SIGNIFICANCE.*

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The object of this paper is not necessarily to bring anything new before you but rather to present a subject which is of great interest to every practicing physician, and is, I believe, of very great importance because of the artificial conditions under which we are living, and more particularly because of the great incidence of cancer.

The presentation of this paper will be from the standpoint of what we can do for these conditions in the way of treating them as general practitioners, or just what can be expected in results from those cases referred to the specialist.

The causes of uterine hemorrhage fall into two main groups: Those which are, and those which are not connected with recent pregnancy. For clinical purposes, cases of uterine hemorrhages fall into the following three groups:

First: The menstrual periods are regular but prolonged and excessive in amount, commonly called mennorrhagia. This is most commonly found in cases of fibroids, hypertrophy of the endometrium, chronic metritis, etc.

Second: The bleeding is irregular and excessive at times other than the menstrual period, commonly called metrorrhagia, this always should call your immediate attention to the possibility of malignant disease; such as carcinoma of the cervix, more rarely of the body of the uterus.

Third: Hemorrhages occurring at some period subsequent to the menopause possibly in small amounts. This always suggests malignancy. Statistics show that malignancy accounts for over 50 per cent of all hemorrhages after the menopause.

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Mennorrhagia may be due to excessive ovarian impulse, to an enlargement of the uterine area which responds to the ovarian impulse and to local or general conditions which cause congestion of the blood vessel of the uterus, or endometrium; such as pelvic inflammations, acute nephritis, etc.

Mennorrhagia in young girls, adolescent hemorrhage, often presents a difficult problem. This is often caused by excessive ovarian impulse and here we run into the realm of theory when we begin to use extracts from the endocrine glands. We know that in some cases of hyperthyroydism mennoraghia dissapears when the thyroid condition is corrected, and likewise, cases are improved sometimes by administrating thyroid extract to cases of hypothyroidism. Also we know the effects of pituitry extract on the musculature of the uterus. Pituitrin is used in such cases. It is rational to use a glandular extract in these cases, but do not be surprised if your results are not always the same and do not be disappointed at your failures.

For a number of years dilatation of the cervix with curettage of the uterus was the court of last appeals in these cases, and many were definitely cured and still are being cured by this method. In latter years first the roentgen-ray and now radium have stepped into the breech and we now have at hand, two modalities which hold out a helping hand to us. In young girls and women before the menopause too much care cannot be used in the application of either the roentgen-ray or radium, or else a permanent premature menopause will be brought about and this is to be avoided in these cases. I will not attempt here to discuss the relative merits of radium or roentgen-ray or whether one causes more damage to the ovary than the other. Rightly used both can be of great help in very difficult cases and carelessly used, both are a source of great danger. This is most forceably brought home to me right now as I have recently inherited one

vesico-vaginal and one recto-vaginal fistula caused from the use of radium.

An amenorrhia of two or three months followed by normal menstruation may be of great benefit to these patients, and will often be followed by normal sex function. Treatment of all these cases should be based on a careful history, and one must be careful not to overlook a general condition of which the menorrhagia may be only a part of the picture.

In the case of menorrhagia where the bleeding is excessive or irregular, the most likely cause is some innocent condition such as: uterine-fibroids, hypertrophy of the endometrium, chronic metritis and endometritis. It has been stated that over 20 per cent of all women have sooner or later a fibroid tumor of the uterus. In many instances the tumors are small and cause no symptoms; nevertheless operations for fibroids form a large proportions of all gynecological operations. The diagnosis rests on a history of menorrhagia, with an irregular enlargement of the uterus. If, however, there be but one small fibroid polyp in the uterus, the increase in the size of the uterus may not be sufficient to be detected by bimanual examination and the diagnosis may be tentative until confirmed by dilatation of the cervix and exploration of the uterine cavity. For fibroids, operative treatment is nearly always the best whenever advice is sought for bleeding or for a lump or for pain. Pain is an infrequent symptom, but may be caused by pressure or red degeneration. During the child-bearing years myomectomy is the operation of choice when the tumor is of such character that a useful uterus can be left. But during later years, hysterectomy should be done, which is a straight-forward and safe operation removing from the patient, who has finished with child-bearing, an organ which may often give rise at any time to discharge or bleeding or which may become affected with malignant disease. Fibroids do not cease to cause symptoms after the menopause but often delay or prevent it. The treatment of fibroids by radium or roentgen-ray, to my mind, is not to be advised unless there is some reason which would render the operation too dangerous for the patient. Though, neither roentgen-ray nor radium can disperse the tumor they may cause degeneration and subsequent, sepsis and there is always a chance that the tumor may be associated with carcinoma of the body of the uterus, or that it may be a sarcoma.

Bleedings during pregnancy are almost always preceded by a varying period of amenorrhea. In the early months, the most frequent cause is threatened abortion. There is little reason to comment on handling these cases, this is a matter of everyday occurrence to all of you. Ectopic pregnancy is next among the causes of irregular hemorrhages due to the pregnant state. A larger number of ectopic pregnancies take place than is generally supposed. Many of these embryos die in the early stages without giving rise to anything of much note except a metorrhagia of small amount. Briefly, the symptoms of ectopic gestation are as follows. A missed, delayed or irregular menstrual period followed by pain in lower abdomen, colicy in character most often to one side. On vaginal examination a bloody discharge mixed with mucus which does not clot is observed. The cervix is usually soft, sensitive to motion, the uterus usually displaced by a sensitive mass which is usually palpable. Temperature as a rule is only slightly affected. The blood count showing a slight leukocytosis. The red cells and hemoglobin may be slightly or very markedly reduced depending on the amount of blood lost. Needless to say, the indication for treatment in cases of ectopic gestation is to operate as soon as the diagnosis is made and the patient in condition to stand an operation. During the latter months of pregnancy placenta previa and ablatio placentae are causes of hemorrhages. These cases must each be dealt with as a separate case.

Carcinoma of the cervix is very common. It is therefore the accepted rule that any and every woman who complains of any excessive, irregular bleeding at the time of menopause, and all cases of bleeding or discharge after the menopause must be regarded as a probable malignancy case, and carefully examined as such. If there be no palpable or visible sign of carcinoma of the cervix, there still remains a possibility of involvement of the cervical canal, or of the body of the uterus. It must be remembered that whereas before the menopause and the age of 45, cancer of the cervix is twenty times more probable than cancer of the body. As the age of 50 is reached the probability of cancer of the body becomes nearly equal to that of involvement of the cervix. Examination in these cases may necessitate a careful examination under an anaesthetic with dilatation and exploration of the cervical canal and body of the uterus, and the scrapings from the curett or specimen removed by the knife examined under the microscope. The importance of diagnosis and treatment at the earliest moment cannot be too much emphasized; as we must always remember that we see two inoperable cancers of the uterus to one which is operable. The best treatment of cancer of the cervix is operation. Removing the whole uterus with a cuff of vagina, as freely as possible with the cellular tissue around the cervix and the iliac glands. In skilled hands, the results are good, about 40 per cent of the cases are cured and free from recurrence after five years. The primary mortality is comparatively low and patients who suffer a recurrence have a period of from one to five years free from pain, even from discomfort. And the terminal stages are characterized by a general debility rather than the awful bleeding and foul discharge when no operation has been performed. The radical operation is undoubtedly the best treatment so long as the condition is operable. Treatment by radium still does not compare favorably with it and as a curative agent must take second place.

As an adjuvant, or in the treatment of inoperable cases or for early recurrence after operation radium is of great use and will often lengthen and make much more bearable the lives of our hopeless cases.

What are the early symptoms of uterine cancer? Text books mention them in the following order:

First: Hemorrhage. Second: Profuse foul watery leukorrhea and Third: Pain. Now these are signs not only of cancer but of incurable cancer or indeed of inpending death for the reason, that when a patient presents all three of these danger signals, she is rarely cured. Uterine cancer under microscopic examination, materializes as alteration of a single epithelial cell. When this tiny lesion progresses even a little, its presence is manifested by the appearance by nothing more startling than a slight, insignificant, brownish or blood-tinged discoloration of the normal cervical secretions, and this discoloration of the secretion is the one and only early symptom of an incipient uterine cancer. Your diagnosis must be confirmed by the microscope. The importance and significance of this point cannot be over-estimated, nor over-emphasized because, within six months from the appearance of such a slight showing of blood, in the case of one-third of the unfortunate victims, the disease has gone beyond a curable stage. Martzloffs study of the series of cases seen during the first six months of the disease in the John Hopkins Hospital Clinic brought out the startling fact that exclusive of the most benign type of cervical cancer, two-thirds of all patients had broad ligament involvement; and the more startling fact that not a single patient with any involvement of the broad ligament, however slight, was cured by operation. As to the variable degrees of malignancy in cancer of the cervix, Martzloff was able to show variation in five year cures of the astonishing figure of 37.5 per cent between the most benign and the most malignant cell types. Obviously a comparation of re-

sults of treatment of 1000 cases treated by one method, surgery for instance, with another 1000 cases treated by another method, radium for instance, would be almost futile in the face of these findings of nearly 40 per cent difference of the degree of malignancy.

CONCLUSION.

The inexcapable conclusion to be drawn from all the facts and all the evidence is to the effect that abnormal uterine bleeding, however trival in amount, occuring at any period of life from early adolescence to the last day of old age, means cancer, until its existence is absolutely and finally disproved by every means within reach of the physician to whose attention it has been brought.

DISCUSSION.

Dr. Joseph Cohen (New Orleans): On the subject of uterine hemorrhages I take exception to some of the statements that are made. There is absolutely no doubt in my mind between the results obtained by surgery and those by radium. At the Memorial Hospital, New York, both methods were used. Dr. Burton Lee, attending physician, came out with the statement that these are purely cases for radium treatment, the results being far better with radium than where surgery is used. At the Cancer Symposium at Lake Mohonk, New York, convened by the American Society for the Control of Cancer, Dr. Greenbough reported 243 cases coming from 22 different clinics, some of which were treated by radium, some by radical operation (I suppose that is the word I must use). Of the cases operated on some died, the mortality being one in five, the cures after following up three years were 1 out of every 3; in those cases treated by radium there were no mortalities, the cures 1 out of 5. In other words, radium never gives you a death, while surgery (radical operation) does.

In uterine bleeding it is absolutely necessary, in order to arrive at a diagnosis, to get a pathologist's report on the uterine scrapings—if it is at all possible, do biopsy. Radium after the menopause does no harm if it is used, unless the patient develops a recto-vaginal fistula or vesico vaginal fistula. In the child-bearing period radium should not be used promiscuously for two reasons: in the first place it might produce menopause with all its attending symptoms; in the second place, which is very, very important, it might affect the progeny. Radium has an effect on the ovaries even though given in small doses and if, during the child-bearing period the ovaries are affected, how do you know what will happen to the child? There is so much being done in radium application with animals to see what happens to the offspring. Dr. Clarence Cook Little in a paper read last year indicated that radium affects the offspring. Radio active substances have direct effect on the sex cells. There is danger that the promiscuous use during the child bearing period will result in a lot of imbeciles and idiots. This has not been proven yet since all the experimental work has been done on animals. The offspring of animals subjected to radium were deformed or showed malformations in other manners. We can take care of physical evident deformities all right, but with the use of radium promiscuously in the child-bearing period we may have occult brain malformations and mental twists in our progeny that can not be taken care of.

Dr. Lucien A. LeDoux, (New Orleans): The discussion of uterine hemorrhage is incomplete without emphasizing the part played by pelvic inflammations, the acute, subacute and chronic. Dr. Daly emphasizes throughout his paper the necessity for a careful history and thorough physical examination leading up to diagnosis. In this connection I wish to protest against the prescribing of drugs which are supposed to accelerate or diminish uterine bleeding without first determining the cause. Drugs of this character, while calculated possibly to assist ovarian hyper or hypo-function can be of absolutely no value at all in controlling the metorrhagias or menorrhagias which accompany pelvic inflammations. Therefore before employing an agent to suppress this condition, let us look carefully into our case and establish a diagnosis if possible, then use the proper means to eliminate the cause.

Dr. E. Denegre Martin (New Orleans): I am not a gynecologist, but would like to say a few words on this subject. Dr. Daly in mentioning growths as a cause of uterine hemorrhage left out a most important one, uterine polypus, which is frequently responsible for this condition. I have had more cases of metrorrhagia and menorrhagia from this cause than any other, and it happens at all times of life. Polypoid growths can be cured by cureting if in the child-bearing period of menopause, but the ideal treatment, I think, when it can be done, is curettment and the application of radium. If radium is not applied, there is apt to be a recurrence. When submucous fibroids are responsible for the bleeding, I have had the best results with radium. As Dr. Cohen says, in treating carcinoma of the cervix, the earlier it is recognized, the better the result.

Radium should never be used by the inexperienced, but by those who know how to apply it, otherwise we are going to meet with some of the distressing sequelae that we sometimes hear about.

Dr. T. B. Sellers (New Orleans): I would like to call your attention to another common cause of uterine bleeding. This was forcibly impressed upon me two years ago. A widow, well developed, poorly nourished and anemic, gave absolutely negative history of syphilis. Physical examination, negative. Gynecological examination, also negative (uterus freely movable, about normal in size.) A routine blood Wassermann returned plus 4. This patient had been examined by two excellent physicians. She was sent to me for radium treatment.

Dr. H. W. Kostmayer (New Orleans): There is one point in Dr. Daly's paper that ought to be called a little more attention to, and that is the importance of carefully examining the membrane for the possibility of carcinoma of the uterus being present, for it is in the mucous membrane that the growth originates. This leads to the point that I want to make, that the application of radium generally should not be made for uterine hemorrhage, but a definite known cause of uterine hemorrhage. Carcinoma of the body of the uterus calls for surgery, in contrast to carcinoma of the cervix in which radium is the indicated and generally accepted therapy, except in the very early stage. I cannot too strongly emphasize the importance, in dealing with uterine hemorrhage, of the physician determining the cause before applying radium, in order to do his patient complete justice.

Dr. O. P. Daly (closing): I fully realize the merits of the points just brought out in the treatment of carcinoma of the cervix by radium, a therapy which is making greater and greater strides everywhere. I do not believe that the last word has been spoken so far in the question of radium and surgery in carcinoma of the uterus if the carcinoma is taken in its early stage, but am convinced that when it has progressed to any degree, radium is unquestionably the method of choice. In carcinoma of the body, I agree with Dr. Kostmayer that it is a surgical procedure and not necessarily one for the use of radium. I emphasized the fact that artificial menopause was to be avoided at all costs. In regard to the effect of irradiation on the ovaries, roentgen-rays used in the case of a pregnant woman, our literature is filled with recent contributions on the subject. Whether radium has an injurious effect on future offsprings is a question still open to quite a bit of discussion, and I do not believe that, so far, it has been proved injurious; the data on this matter is not complete, and different people report different things.

Dr. LeDoux spoke of pelvic inflammations as a cause of uterine hemorrhage, and Dr. Martin of uterine polyps; I mentioned both in my paper and stated that the polyps were sometimes of such small size that they were not recognized. In regard to Dr. Sellers speaking of syphilis, this was not included in the list. Limited to twenty minutes, one has not time to cover all the causes of uterine bleeding—their name is legion. Dr. Kostmayer stressed the importance of thorough examination before the use of radium, and I think he is absolutely correct. It necessarily follows that if we give as careful an examination as is in our power, we will overlook less than we have been overlooking and be in a position to obtain the best results from treatment.

Time is the greatest factor in the treatment of cancer, and when too long a period has elapsed before malignancy is discovered, all the therapies at our disposal are powerless to effect a cure.

PLACENTA PRAEVIA.*

JOHN FAIR LUCAS, M. D.,

GREENVILLE, MISS.

Placenta praevia is a formidable complication of the later months of pregnancy, and constitutes a large number of our obstetrical tragedies. Although not so frequent a complication as premature separation of the placenta, it is just as much an emergency, creating apprehension in the mind of the patient and members of her family as well as demanding the immediate attention of the physician.

There has been a large amount of literature upon this subject during the past few years and it is my purpose today to discuss briefly the history, etiology, anatomy and diagnosis of this condition, and to dwell more extensively upon the management of these cases.

As we know, placenta praevia is the development of the placenta in part or wholly within the zone of dilatation of the uterus. The condition was known in Hippocrates' time. Paul Portal in 1664 stated that the placenta may be implanted over the os.

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Rigby in 1775 was the first to clearly differentiate between placenta praevia and premature separation of the placenta, and Schaller was the first to demonstrate at the autopsy table the attachment of the placenta over the internal os.

Its frequency is variously reported by various writers as ranging from one in a hundred to one in a thousand cases. Surely one doing almost entirely hospital practice will encounter the condition more often than the general practitioner, because these cases are sent to the hospital as soon as the hemorrhage takes place. It occurs more often in multipara who have had a previous endometritis, as the diseased endometrium is thought to prevent the ovum from attaching itself higher in the uterus.

The cases are divided anatomically into three varieties depending on the position of the placenta in relation to the internal os and lower uterine segment. (1) Centralis —when the placenta completely covers the internal os. (2) Lateralis—in which it but partly covers the os. (3) Marginalis —in which the placenta which implanted wholly or partly in the lower uterine segment, does not extend beyond the border of the internal os.

The most characteristic, and usually the only, symptom is sudden, painless hemorrhage with apparently no cause assignable to the patient, who may wake up and find herself in a pool of blood or notice on arising from the toilet fresh blood or clots in the vessel. The initial bleeding may be slight but the slightest bloody discharge demands investigation for the bleeding will recur when least expected, often as an acute hemorrhage which may end fatally or as a continuous slight discharge which will so weaken the patient that with added blood loss and shock of delivery may bring about a fatal termination.

The diagnosis may be confirmed by vaginal examination, which reveals a large, boggy and edematous cervix, and on passing the finger through the cervix a soft cauliflower-like mass is felt between the finger and presenting part. Often the pulsation of the uterine arteries can be felt through the vaginal fornices. It is best to reserve this examination until the patient is placed in the hospital and everything is ready to deliver the patient, as often a profuse hemorrhage may be started.

The maternal mortality in this condition is due almost entirely to, first, antepartum hemorrhage, second to sepsis, and third, post-partum hemorrhage, the latter accounting for over half the deaths reported. Very seldom does a death occur in a case undelivered, and in which no intra-uterine manipulation has been performed. In reading over case reports of different hospitals one cannot but notice the number of deaths that occur within a few hours after delivery, which is attributed to hemorrhage due either to continued bleeding from the placenta site or from atony of the uterus. Thus the management of placenta praevia is principally the treatment of hemorrhage. The indications are: first, to replace the blood loss, and second to deliver the patient as soon as she is in condition to stand delivery. This should be done with the least amount of blood loss, shock, and trauma, and by a method that is least likely to be followed by post-partum hemorrhage which is the cause of over half the deaths due to placenta praevia.

If a woman has had a profuse hemorrhage, and has a rapid weak pulse and is in a state of shock, the added blood loss and shock from any method of delivery may be too much for her to stand. Bill, in an article in the October, 1927, Journal of Obstetrics and Gynecology, stressed this point and emphasized the fact that the loss of blood may be sufficient to cause atony of the uterus, while the atony causes further hemorrhage, thus a definite vicious circle may be established. He states that such a uterus will not respond to drug stimulation, and the only hope of breaking the vicious circle lies in blood transfusion.

It is our practice to type every available member of the patient's family as soon as

she is admitted to the hospital, and if she is not in condition to withstand immediate delivery, a blood transfusion is given while the nurses are setting up the operating room. We believe that the restoration of blood loss by these patients is almost as important as the immediate delivery.

In regard to the method of delivery, there are three basic principles to be considered: (1) Conserve blood loss. (2) Avoid sepsis, and (3) Minimize trauma and shock. We believe these principles are best carried out in the majority of cases by Caesarian section, where there has been no previous attempt at vaginal delivery and where the cervix is not dilated. If the cervix is left undisturbed continued bleeding from the placental site is prevented.

In delivery through the pelvis the placental site on the non-contractile lower uterine segment is stretched and traumatized, often deep tears occurring in the cervix, which is not seldom the cause of uncontrollable post-partum hemorrhage. This type of hemorrhage does not occur when the patient is delivered by section and the lower uterine segment left undisturbed. Bleeding from the uterus during the operation is under perfect control, as the assistant makes pressure on the lower uterine segment, until the uterus contracts and bleeding has ceased.

The use of spinal anesthesia we believe gives us better contraction of the uterus by blocking the spinal nerves and allowing the uninhibited action of the sympathetic system.

There is much less shock and trauma to Caesarian section than to long drawn out delivery through the pelvis and certainly there is less danger of infection or sepsis following a section on a case that has had no intrauterine manipulation than when delivery is effected through the pelvis by version or use of the bag, for in the latter case we are working through an already infected field or one very difficult to render aseptic. The lacerated and traumatized cervix and exposed placental site is very prone to infection, and may be followed by puerperal sepsis.

During the past two years we have had four cases in our clinic in Greenville, two occurring in our private practice, and two referred to us for treatment. The case histories are briefly as follows:

Case 1: Mrs. H. S. Multipara, seven and one-half months pregnant, admitted at 5 a. m., 10/10/26, following a painless hemorrhage. R. B. C. 4,200,000, Hemoglobin 70%. Cervix boggy and placenta could be felt in lower uterine segment. Practically no dilatation. Diagnosis Placenta Praevia Centralis. Caesarian Section under ether anesthesia. Live baby. No post-partum hemorrhage. Both mother and baby discharged well on the sixteenth day.

Case 2: Mrs. P. D. Multipara, seven months pregnant, admitted to the hospital at 4 a. m., 7/27/27, following a painless hemorrhage. This stopped but recurred at 9 a. m. Central placenta praevia. Cervix admitted two fingers. R. B. C. 3,840,000. Hemoglobin 65 per cent. Caesarian section under spinal anesthesia. Live baby. Both discharged as well on the twenty-third day.

Case 3: Mrs. D. H. M. Mutlipara, admitted at 5 a. m. on 11/1/27 following a very profuse painless hemorrhage. Unable to count pulse. R. B. C. 2,400,000, hemoglobin 50%. 500 c.c. of blood as transfusion given immediately. Pulse improved, rate 140. Caesarian section under ethyline anesthesia. Partial placenta praevia. Live baby. Was given 1000 c.c. of saline subcutaneously during operation. One hour after delivery 500 c.c. of blood given as transfusion. There was no post-partum hemorrhage and the next morning the patient was in good condition and made an uneventful recovery, being discharged on the twenty-second day.

Case 4: Mrs. R. E. K. Multipara. Eight and one-half months pregnant was admitted to the hospital 12/23/27, following a profuse painless hemorrhage. R. B. C. 3,500,000. Hemoglobin 60%. Pulse 120 and rather weak. 500 c.c. of blood given as transfusion. Caeasrian section under ethylene anesthesia. Live baby. Partial placenta praevia. No post-partum hemorrhage. Patient discharged on the twenty-first day.

Two of these cases were delivered before they had lost enough blood to need transfusion, while the other two had bled profusely and were transfused immediately before delivery was effected by Caesarian sec-

tion. One of the later cases was transfused after operation also. There was no post-partum hemorrhage in either case, all four made uncomplicated recoveries and each had a live baby when discharged.

It is not my purpose to advocate section in every case of placenta praevia, for there are some cases that must be delivered in the home, where the physician has very little assistance and equipment. Here it is advisable to use a firm pack in the cervix and vagina, or insert a bag and wait until the cervix is dilated. Then the delivery can be effected by forceps or version, or the patient allowed to deliver herself if progress is being made and the bleeding controlled. Forcible dilatation of the cervix is not to be considered for it cannot be done without causing severe lacerations. A few cases that occur during labor where the cervix is somewhat dilated and with a marginal type, the bleeding may be controlled by simple puncture of the membranes, allowing the head to descend in the pelvis, and compressing the bleeding sinuses. Any method of delivery through the pelvis requires a firm intrauterine and vaginal pack to insure against post-partum bleeding.

CONCLUSIONS

1. Placenta praevia is often a tragic complication of the latter months of pregnancy, and demands early recognition, hospitalization, and immediate termination.

2. Rigid asepsis in the preparation and examination of the patient; preferably no vaginal examination, as a diagnosis is made on the presence of sudden hemorrhage without pain in a woman in the later months of pregnancy.

3. Over half of the mortality is due to post-partum hemorrhage, either from uterine atony, or continued bleeding from the placental site.

4. Transfusions should be done before delivery, so that the patient will be better able to withstand the delivery, and to prevent atony of the uterus.

5. Prompt termination of the pregnancy after restoring the blood loss, by Caesarian section if the cervix is not well dilated. By this method of delivery we are operating through a clean field, bleeding is under control, and post-partum hemorrhage does not occur.

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DISCUSSION.

Dr. C. F. Patterson (Rosedale): I think Dr. Lucas had a very good paper. Where you have hospital facilities, I think operation is indicated in those cases, but in some localities, three or four miles in the country, the first thing you see is a hemorrhage with blood soaking through the mattress and running on the floor—the patient's pulse is thready and hardly perceptible. What can you do in such cases except sterilize and go to work? I have found that tincture of iodin is fine; just emerse your arms in it and sterilize the local parts of the patient, insert your hand and catch a leg or anything and go ahead and deliver in the regular way. Make traction, if possible. That is about the safest policy out in the country. I have never had an infection following a delivery in this way. I think we should depend on version unless you have a marginal placenta. Sometimes the placenta is marginally attached and sometimes tears through the cervix, and then we can go ahead and give about 3 milligrams of pituitrin, just as indicated and have a normal labor with not enough hemorrhage to hurry the patient in final delivery.

Dr. J. F. Lucas (closing): I thought I was going to get all kinds of discussion both pro and con on this paper. I appreciate Dr. Patterson's discussion, and I agree with him that in the country you have to do certain things you can not do in a hospital, but I believe in the early hospitalization of these patients. The deaths from post-partum hemorrhage will account for over half of the deaths.

PSEUDOCYESIS.*

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Pseudocyesis, false or spurious pregnancy is a condition which has received but scant notice by the authors of our works on obstetrics and psychiatry. To quote from a lecture by Wilhelm Liepman, Berlin: "A practicing physician who, for the first time sees a typical case of pseudocyesis, will look in vain for information about this very interesting disease in the books of psychiatry and obstetrics". According to Liepmann, Fraenkel is the only German author who treats explicity this subject in his books, "Normal and Pathologic Sexual physiology of Woman." Our own great authors, DeLee and Williams give the subject only passing mention.

To those of us on the "firing line," so to speak, the problem is one that often taxes our ingenuity to the superlative degree. It is not infrequently a social question fraught with grave consequences. The marital peace is often at stake. In short it is more than a disease; it is a situation that must be handled only with the degree of tact that a background of a long and active clinical experience is capable of sustaining. Pseudocyesis is not confined to o'd maids and childless matrons approaching the climacteric. Two of the most interesting cases that I wish to report occurred in young matrons, already mothers and women of a high order of intelligence.

That similar conditions occur amongst the lower animals is well attested by the testimony of numerous observers.

T. H. A. Marshall writing on the proestrum and pseudo-pregnancy has given us a profound study of the physiology of this, to me, most interesting subject. According to Heape (1900) the estrus or heat cycle is divided into four phases viz. 1. The anestroum or period of rest. 2. The proestrum, or period of coming on heat, during which is a typical growth and congestion of the generative organs, followed by a sanguineo mucus discharge. 3. Estrus or, period of desire.

Metoestrum, which occurs only in the absence of pregnancy, during which the generative organs subside to a condition of quiescence. This division applies to monoestrous animals (as the bitch) that is those animals with only one heat period in the sexual season. Among polyoestrous animals (such as the mare, cow, ewe and sow) there are in the absence of the male a number of heat periods within the sexual season with short intervals of rest which cycle Heap has given the term dioestrum which is probably homologous with the menstrual cycle of women.

More recent investigations have lead to the necessity of revising the scheme of the estrus cycle and it has been shown that both the long and short cycles of change are affected by ovarian activities. It is now known that in the bitch (a typical monoestrous mammal), whereas there is a proestrum and a well definied estrus, the latter period in the nonoccurence of pregnancy is succeeded by a period of the development of the corpus luteum, growth of the uterus and mammary glands, and that this period is almost as long as pregnancy. Its termination is marked by regressive changes in the uterus with some hemorrhage and the formation of milk in the mammary glands (Marshall and Halman). Other animals experiencing pseudo-pregnancy in non-occurence of gestation are the cat (Hill and O'Donghue) opossum (Hartman), and the rabbit (Hammond and Marshall). In the rabbit and cat in which ovulation occurs ordinarily only with coitus pseudo-pregnancy has been induced as a result of intercourse with vasectomized males. Marshall succeeded in producing this pheonomena in two cats in which there was mammary growth followed by milk secretion lasting three weeks. Richard Kantorowicz, a well known Ger-

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man veternarian has observed this condition often in young pet dogs. The mammary increased in size and milk occurred in such quantities that the animals removed it by sucking. Psychically, the animals appeared morose, and act as they usually do before giving birth to a litter. To quote this observer further, not infrequently somatic manifestations are seen such as increase in size of abdomen, broadening of the backs and clumsiness of the gait.

For an explanation of all these most interesting manifestations we must go to psychologist. He has divided the female psyche or soul in animals and man into three subdivision which he has classified under the law of inhibitation, the law of vulnerability and the law of pansexualism. These he has grouped under the law of the "Three-fold Cause".

The effect of the law of the three-fold cause may be divided, as in all psychogenic diseases of women, into a three-fold phrase of origin. The first phase, which is subject to the conscious will, is the conscious wish or fear to have a child. Continuous impulses of this kind produce the cessation of menstruation, and by this cessation retrogradually new impulses of the victorious will cause new enforcements of the originally affected thought.

The second phase proceeds gradually from the conscious to the unconscious. As in sport, to use the excellent example of Kretschmer; at first consciously a balance, an extremely complicated coordination of muscles, is maintained and then gradually the stage of unconscious ability enters, in the same manner the conscious thought disappears by and by, and the second unconscious, self conscious hypobul (Kretschmer) stage results. The continuous impulses which inhibited menstruation unconsciously relieve primitive stimuli on the mammary glands (milk) on the genitals and on the whole abdomen, bloating the intestines and anatomically simulating pregnancy.

In the third phase the pelvic tract functions automatically, like a reflex apparatus, corresponding to the reflexes described by Pavlow and studied in their relation to gynecology by Walthard.

Pseudocyesis may be divided into two great groups: In the first group the impulses come from the outside as in bitches. A wrong diagnosis by a doctor has found fertile ground in the amenorrheic woman. In the second group the impulses come from the woman, herself. Mostly they are desires, less frequent fears which become fixed and cause the multitude of organic changes.

The bruits, the percussion of the intestines against the abdomen wall simulating fetal movements, the organic changes all disappear if we succeed in convincing the woman that pregnancy does not exist. On the contrary they will go on after they are transformed into a paranoid idea, as has been observed by one of my friends who has a patient who still insists after one and a half years that she is pregnant.

CASE REPORTS.

The two cases that I wish to report briefly occurred within a short time within my practice and illustrate the two phases of this most interesting phenomenon.

The first case in a lady thirty years of age, the mother of one child. She represents the extreme neurotic type, in that although a woman of high intelligence, she is very susceptible to suggestion; anxiety neurosis is very manifest at times. She is healthy and menstruates regularly, though no profusely. Her husband had been using the condon to prevent conception. An accident occurred. Immediately she became imbued with the conviction that she was pregnant. Nausea and vomiting became so severe that it was necessary to confine her to bed under the care of a trained nurse. Later she increased in weight, became broader at the hips, her breasts showed the usual signs of pregnancy. After careful examination she

was informed that she was not pregnant. She insisted that she could not face her friends without an alibi. A day was arranged for a pseudo-abortion. On the appointed day, the stage having been set, she promptly began to menstruate, for the first time in eight months and actually began to have intense pains simulating labor. Upon my arrival I was shown something she had passed, which upon examination proved to be a perfect cast of the inside of the womb. The patient soon after returned to normal and has since continued to menstruate regularly.

The second case represents an example of the impulse from within. A well developed young matron 25 years of age, menstruates always very irregular since girlhood. She conceived for the first time about one year after marriage with pregnancy uneventful and this woman, the only girl in the family, had always had her way. Her every desire had always been fulfilled. When she decided to have another child, she presented herself at my office with the information that she was pregnant again. Although she refused to permit an examination, she brought her urine to the office regularly and had the blood pressure taken. On the date that she had fixed as the time for delivery, she called me up and informed me that she had just noticed a bloody discharge, but that she was having no pains. A short while later I saw her, at which time she allowed me to examine her. When I informed her that she was not pregnant, she became indignant and averred that she had felt movements of the child. This woman has since borne children.

Before closing, I wish to report one more case.

When I was a student at the Charity Hospital some 20 odd years ago, I brought in a woman on the ambulance who appeared to me to be in labor, I called the House Surgeon after I had examined her as I could not understand the situation. When he looked at the woman, he laughed and informed me that she had been brought in several times before with the same diagnosis, but that a hysterectomy had been done on her several years previous. For all I know the students down there are still bringing her in at periodic intervals.

TREATMENT OF LUNG ABSCESSES*

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Lung abscess is a very serious condition. It is far more serious than empyema, or any other kind of infection of the lungs. Empyema and other kinds of infection usually follow lobar pneumonia, but a lung abscess rarely results from pneumonia. In a series of cases examined in some of the hospitals of the country, it was found that the pneumococcus played a very small part in the formation of lung abscesses. Lung abscess usually arises from some focal infection either in the tonsils or about the sinuses, the limbs or somewhere else; so that we do not get the infection that we get in pneumonia. The onset is not as rapid as pneumonia. It is very rare that it begins with a chill and high fever as pneumonia does, but the onset of the disease is rather a slow process, and often the patient is sick two or three weeks, or a month before a diagnosis can be made.

The Physical Signs. There has been no change in the physical signs, or in the method of examination of these cases in the past 15 or 20 years. All of the physical signs are laid down in text books and you can read them. The cough is often a very harassing one that is almost pathognomonic of lung abscess. The cough is so distressing that sleep cannot be obtained except under the influence of an opiate.

Continuous Fever. Many cases have been diagnosed as tuberculosis, and not until you make thorough study will you find the true pathology in the lung.

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The Source. The infection passes first through the blood stream, particularly where the site of primary infection is in the lower limbs. I had one case with a nail puncture in the foot that finally developed a lung abscess. The infection may arise in the tonsils, sinuses, or any other part of the body. It is carried in the blood stream and the embolus lodges in the lung and pus develops therefrom.

Lymphatic Sepsis. Infection in the lung and elsewhere may be carried by the lymphatics from distant foci. A fractured rib, or a gunshot wound or traumatism by a foreign body introduced into the lung may cause abscess.

Direct Extension. Following tonsillectomy the patient may inhale blood and infection follows. On a recent visit ot Philadelphia I saw perhaps 50 or 75 cases in Chevalier Jackson's Clinic, and at least 80 per cent of these cases followed tonsillectomy. I have been here about 25 years, and I do not remember seeing but one case of lung abscess following a tonsil operation. Jackson claims that it is due to electrically driven motors, but I can not agree with him, although I do not put up my opinion against his. It seems to me that if you have a good suction machine, and give ether vapor you lessen your chances of infection from that source.

New Growths. We often have neoplasms of the lung—carcinoma, sarcoma and other tumors pressing upon the tissue and interfering with the circulation of the lung, predisposing to a secondary infection and abscess.

DIAGNOSIS.

Physical Examination. The physical examination is of the greatest importance. A good history and a thorough physical examination will enable you to map out the disease almost without any further aid.

Aspiration. I mention this only to condemn it. I think that aspiration for lung abscess is not good practice. I do not think it is good practice in the hands of an expert, because there is no telling how much damage you are going to do probing about in the lung looking for an abscess. You may have a hemorrhage in the lung, and may set up more adhesions than you already have.

Roentgen-ray. About the only thing that is of any real value is the roentgen-ray, both fluroscope and plate. In order to get a good localization of the lung abscess it is necessary in all cases to have a stereogram. In that way you can locate each abscess. If you have an expert roentgenologist he can locate these abscesses exactly without aspiration or anything of that kind.

The time is at hand when with electricity all over the country there will be a roentgen-ray machine in most every little town. You do not have to be an expert roentgenologist to differentiate between a lung abscess and empyema, or to tell whether the lung is perfectly clear or not.

TREATMENT.

There is a medical treatment, bronchoscopy and surgical treatment. Dr. Cohen of New Orleans, I think several years ago, reported in the New Orleans Medical Journal about 85 cases of lung abscess with improvement in only about ten per cent of them. He thinks that all these cases are surgical. Dr. John B. Elliott of New Orleans does not approve of the surgical treatment. He says that if you will let these cases wait long enough and elevate the foot of the bed, they will bring themselves around and you do not have to do any surgery. They certainly need long continued medical supervision. You do not need to hurry any of these cases. They are not emergency cases. If I had a lung abscess I do not think that I would want any surgical interference for at least six weeks, but I would be in constant touch with a good roentgenologist. I would have him examine my lungs often, and mark out on the chart just the size of the cavity, whether it was improving or getting worse, getting any smaller or any larger. I would be guided very largely by what that roentgenologist said about my method of treatment.

The Bronchoscopic Treatment. There has been a whole lot said about the bronchoscopic treatment of these cases especially since Chevalier Jackson and Dr. Lynch came into the limelight but I am like Tom Bailey about the printing press. He says it might be all right, but he can't see it. Probably when I know more about it and understand it better, I can see their view more clearly. At Chevalier Jackson's clinic a few years ago, in three days I saw about fifty cases, some walking in, speaking to everybody, and seeming to be in perfect shape. He put them on the table and used the bronchoscope; then said "in two days." I think those cases would have done just as well without that. I could not see any benefit from just sucking this stuff out of the throat or the bronchus. When you consider the trauma connected with it, it is not justifiable in my opinion.

Surgical Treatment. The surgical treatment, I think, is the only treatment, and I want to demonstrate a few lantern slides to show my method of operating. I think these cases can be operated on with perfect safety if you wait long enough; do not operate too early. Wait until the infiltration all around the abscess has practically disappeared and then I think you can operate on them with absolute safety.

DISCUSSION.

Dr. M. Ewing (Amory): This is a very excellent paper and I would like to report 13 cases of lung abscess throughout a 12-year period. One case was treated medically, not from choice, but because the patient refused any other. This was a case following tonsillectomy. I speak of the treatment he received only to condemn it. He was in a terrible state; he coughed up casts that looked like ferns, and the case resulted in death. My treatment of the twelve cases turned out well, excepting one who still has not completely recovered. There is a bronchial fistula, but it is not draining pus now. Of these twelve cases, contrary to the Philadelphia cases of Chevalier Jackson, none followed tonsillectomy. They followed various causes. The treatment of these is divided into two types, those which ruptured into the bronchus and were checked constantly by roentgen-ray, although I did in one case after failure of pneumothorax have to collapse part of the chest wall in order to get closure. The remainder of these were treated by operation. Contrary to what Dr. Hairston says, I aspirate these cases, having them localized the best I can by roentgen-ray. I follow the aspiratory needle to locate the point of the abscess. Even though bifocal, the roentgenogram does not always tell you the best place to reach the abscess. It is my custom to do the operation in two stages, and I prefer local anesthesia throughout. At the first operation, I resect two or three ribs, separate the pleura from the ribs which are allowed to remain. In other words I get a free space. I pack that with gauze and leave it forty-eight hours after closing the wound nicely. At the end of that time I always have firm adhesions. At the second stage, I do not use any anesthesia, but simply remove the stitches and go into the abscess. I have had no infection of the pleura. I have not had complications. I know of other surgeons who are adopting the same process, and Dr. Hairston reported a number of cases, you remember, about ten years ago. Now we have learned that by using the same care as in abdominal surgery, you can operate on the chest. It is possible where adhesions prevent collapse of the lung with an abscess and where it is draining through the bronchus, for you to go in.

Dr. J. H. Hairston (closing): I haven't anything further to say. I thank Dr. Ewing.

TRAUMATIC RUPTURE OF THE NORMAL SPLEEN*

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Rupture of the spleen, spontaneous or traumatic, is imperfectly understood and though many hundreds of cases have been reported in the literature, the subject demands much additional study. Spontaneous rupture of the spleen has occurred in typhoid fever, in amyloid degeneration, in malaria and in many other pathologic conditions associated with splenomegaly. The pathological spleen, owing to its enlarged volume, increased friability, and lessened mobility consequent to the presence of perisplenic adhesions, is predisposed to traumatic rupture. Traumatic rupture of the pathologically enlarged spleen may follow a slight accident as in the case reported by Dorolle[1] in which a soldier

*Report of Three Cases with a Cursory Review of the Literature.

with an enlarged malarial spleen died a few minutes after having been struck a light blow on the side. At autopsy, the spleen presented two tears, one, on its external, the other, on its internal surface. It weighed 995 grammes; the abdominal cavity contained over 3 litres of blood.

Usually, rupture of the normal spleen results from a severe abdominal contusion or crushing injury. The vast development of automobile traffic on our streets has increased the frequency of this lesion. Therefore, a paper on the subject is not untimely and may serve to emphasize the importance of splenic rupture and the possibility of its being overlooked in patients, victims of automobile accidents. This paper deals only with traumatic subcutaneous rupture of the normal spleen. Such a rupture is usually due to a direct crushing injury on the left hypochondrium or over the left thorax as one may sustain in a fall from a bed, a tree, etc., from a blow, a kick, man (11), or horse (17), or from the impact of a hard body, a fractured rib, etc. Rupture due to penetrating wounds from without, we will not consider at this time. The small volume, mobility and location of the normal spleen, all protect to it a certain extent from injury.

Berger [2] in 1907, collected from the literature 467 cases of splenic traumatism, 306 of which were subcutaneous injuries. Two years later, Borgsitter [3] increased the number to 203 surgically treated cases. Barnes in 1914 reported 31 further cases of rupture of the normal spleen and Willis [5] in 1919, found 53 more cases reported.

ETIOLOGY.

This injury occurs in both sexes; in children[10] and in adults. Age or sex, of course, have no significance in traumatic cases. The automobile has many advantages and has become almost a necessity to a large section of the population, but it is also a powerful agent of injury and death. Many cases of traumatic rupture of the normal spleen reported in the medical literature of recent years, have been the result of automobile accidents. Alamartine[6], Koltes[7], Willis[5] 2 cases, Garlock[9], Frank[10] and Chalier[12] have reported cases of the kind. In McCracken's[13] 20 cases, one-third were due to train or motor-car accidents. To produce a splenic rupture, it is not necessary that the car should pass over the victim; in a collision, such an injury may also result to an occupant of the car. In Kolte's case, the patient had been thrown out of the car and was operated for a splenic subcapslar hemorrhage, 4 days later. In 2 of the 5 cases reported by Butler and Carlson[8], the patients had been struck by an automobile; in the other three cases, the wheels passed over them. In most of the reported cases, the patient has been struck by a machine. A fall on the left lower ribs on a sharp surface is liable to cause a splenic rupture.

Splenic rupture may result from an abdominal traumatism elsewhere than in the splenic region. Latouche's[14] patient was a child 10 years of age who, following a fall on the right side, presented a splenic rupture. Forced extension and exaggerated flexion of the body have caused splenic rupture; at times, the fragment of a broken rib is the causative agent.

In automobile accidents, usually, the rupture is produced by a direct blow on the flank over the spleen or else by the spleen being compressed between two hard opposing surfaces either directly or through the medium of the ribs.

Within the past year, I have removed two ruptured spleens. In reporting them, I wish to report also a case in which ten years ago, I removed a ruptured spleen. All these patients were victims of automobile accidents. Short histories of these cases follow:

CASE HISTORIES.

Case 1. R. R. male; 8 years old, referred by Dr. L. Roth. History: The boy having been struck by an automobile was conveyed immediately to his home and there seen successively by sev-

eral physicians who failed to make a definite diagnosis. Dr. Roth was consulted 48 hours after the accident. The child then complained of severe abdominal pain and tenderness, both especially marked in the left hypochondriac region; he was pale, nauseated and apparently suffering from deep traumatic shock. Over the left hypochondriac region, the abdomen was tense, contracted and rigid. Temp. 99°, extremities cold and clammy, pulse 100 and weak. A blood examination showed: erythrocytes 2,950,000; leukocytes 14,350, hemoglobin 45 per cent. The symptoms suggested an internal hemorrhage and an immediate laparotomy was decided upon. Operation; Ether anesthesia. Rupture of the spleen being suspected, a long left transverse, subcostal incision was made. On opening the peritoneum, a large quantity of fluid and clotted blood escaped; it was found to proceed from the lower pole of the ruptured spleen on the convex surface of which could be seen a large stellate fissure partly filled with large clots. After walling off the intestines, the spleen was exteriorized, its pedicle was clamped and ligated serially with double ligatures of chromic gut and the organ removed. Peritoneal toilet and closure of the abdomen; no drainage. An infusion of 500 c. c. of saline solution was given. The boy made an uneventful recovery.

Case 2. Miss J. H. aged 20 years, was knocked down by an automobile. While still unconscious, she was taken to the St. Paul Hospital, Chicago, where for about 48 hours she remained in a condition of intense traumatic shock; she had a very rapid and weak pulse, a facies of cadaveric pallor and marked dyspnoea. Temperature 95°, pulse 105, respiration 24. Under continuous application of the usual restorative measures, the patient began to improve. Examination. The patient's body showed several contused areas. The expextorate was slightly blood-tinged. Tenderness and muscular contracture, fairly marked over the whole abdomen, were particularly noticeable in the upper left hypochondrium; there was a moderate degree of tympanites. The left hypochondrium was dull on percussion. Fracture of the left tenth and eleventh ribs could be demonstrated. The patient complained of pain in the left shoulder. Blood examination showed erythrocytes 3,050,000; leukocytes 12,700. Fifty-eight hours after the accident, owing to the continued presence of all the signs and symptoms of an acute anemia indicative of an internal hemorrhage, it was determined to explore the abdominal cavity. Operation. A splenic rupture being suspected, the abdomen was opened by a left subcostal incision. The peritoneal cavity contained a larger amount of free and clotted blood which was quickly removed. Exploration traced the hemorrhage to the spleen which was found ruptured in the superior pole. After ligature of the pedicle which chromic gut, the organ was removed; two gutta-percha drains extending to the former splenic bed were inserted. They were removed two days later. Abdominal closure. The left side of the chest was immobilized by overlapping strips of adhesive plaster extending over the left half of the thorax from the anterior median line of the body to the posterior median line. Following the operation, a subcutaneous infusion of 700 c. c. of saline solution was given. It was repeated daily for three successive days. The patient made a smooth recovery. One month after the accident, the only symptom present was some pain over the left chest on coughing, sneezing or yawning.

Case 3. H. A. Referred by Dr. Ross, 18 years old, sustained in an automobile collision, abdominal injuries. He was immediately conveyed to the Iroquois Hospital, Watseka, Illinois. When seen two days after the accident, he was suffering from intense abdominal pain and presented a board-like rigidity of the abdominal wall and other signs of abdominal injuries. Pain on presure was especially marked in the left hypochondriac region; patient was very pale, pulse and respirations were accelerated; patient had vomited. Splenectomy, recovery. Ten years later, he is in excellent health and is able to work the same as his comrades.

SYMPTOMS OF SPLENIC RUPTURE

The most important symptoms of splenic rupture are, as may be expected, those that arise from severe abdominal visceral injuries, viz: traumatic shock, hemorrhage and abdominal phenomena. Vomiting is not a constant symptom. These immediate symptoms do not as a rule enable us to differentiate a splenic rupture from that of any other abdominal viscus. Generally, it is only after a delay of several hours, or even days in some cases, that the intensification of existing symptoms or the appearance of new ones focuses attention on the spleen.

In every case of abdominal contusion, splenic rupture is a possibility. Therefore, in examining patients with traumatic abdominal injuries, the possible clinical symptoms associated with splenic rupture should always be kept in mind. This is a very important fact in automobile accidents, as in these victims the contusions and in-

juries are often general and are not necessary confined to the hypochondriac region. It is well to remember that such injuries may happen to persons within a car as well as to those injured by a car striking or passing over them; severe blows on the flanks or a costal injury in the neighborhood of the spleen are very likely factors in the production of a splenic rupture.

Let us consider the most sailent symptoms caused by splenic rupture. Shock is usually, but not invariably, present. It is manifested by its usual signs and symptoms; pallor, cold sweat, drawn facies, rapid respiration, small and rapid pulse, etc. Patients may get up and walk for some time after the accident, but syncope appearing some hours or some days after an abdominal injury, associated with a small rapid pulse is suggestive of a delayed hemorrhage, and when supported by other corroboratory symptoms, is almost pathognomonic of splenic rupture. This delayed or recurring syncope is indicative of recurring hemorrhage and calls for immediate operative relief. Persistent pain and tenderness especially when stronger later than at the time of accident are also symptoms of great value. The pain in the case of a splenic rupture may not be strictly localized. It is always most marked in the superior abdominal quadrant, it may be iliac, inguinal or irradiate to the lumbar region. In character, the pain is acute, often stabbing, and is more intense on pressure and in the dorsal decubitus.

Pain in the left shoulder (5) when present is a very important though not an absolute symptom of splenic rupture. It has been reported in about 10 per cent of the cases, although it is probable that it was present in many others but not looked for. This sign has been observed in spontaneous as well as in traumatic rupture of the spleen. It was present in one of my cases. It may be a late sign, as in Havlicek's case[15] of hip dislocation and associated splenic and pancreatic rupture, in which it was only observed on the fifteenth day after the accident, at a time when there were no abdominal symptoms. The corresponding upper limb is also usually cold. Quenu[16] attributes this scapulo-humeral pain to possible irritation of the inferior surface of the diaphragm by blood clots and also to irritation of the centripetal fibers of the splenic nerve, the medullary centers of which are adjacent to those of the sensory nerves of the shoulder. On the other hand, Havlicek thinks the pain is referable to the splanchnics rather than to the phrenic nerve. Muscular contraction or rigidity of the abdominal wall is usually a very early and progressive symptom; at first, it is localized; later, it becomes generalized (board-like abdomen). It may be delayed (Hubbard[17] and Latouche[14]), or absent even in complete rupture. It was observed in about half of the reported cases and it is more likely to be found on the left than the right side. It was present in all my cases.

Tumefaction over the region of the spleen, either stationary or progressive in character, has been reported in a few cases, and is indicative of a strictly localized effusion of blood or hematoma. The pulse may not be accelerated. There have been cases in which patients with an abdomen full of blood have shown an approximately normal pulse; nevertheless, a very rapid thready pulse, when present with other signs, is highly suggestive of internal hemorrhage. Temperature usually falls immediately after the accident but may return to normal or higher within a few hours.

Dullness is usual over the lower abdomen. The most important sign connected with dullness is that known as Pitts and Ballance's sign, first described by them in 1896. It apparently has received but little attention, as it is recorded as having been sought only in a very few of the reported cases. Pitts and Ballance[18] found that if there be present an effusion of blood in the abdomen from a ruptured spleen, when

the patient was turned on the right side the flank remained dull owing to the presence of fixed clotted blood, but on turning the patient on the left side the right flank becomes sonorous. This sign, right-flank sonority and persistent left-sided dullness on change of position is strongly presumptive; in fact, is practically pathognomonic of splenic rupture. Its absence, however, does not negative the presence of splenic rupture.

Hemorrhage: In injuries and ruptures of the abdominal viscera, symptoms of internal hemorrhage furnish an almost imperative indication for immediate operation. In the cases collected by Berger,[2] hemorrhage was the immediate cause of death within the first hour in 52 per cent of the cases of splenic rupture; in 14 per cent between 1 and 16 hours, and between 1 and 24 hours, in 34 per cent.

In immediately fatal hemorrhage, Quenu[16] states that the patient presents a great pallor, cold extremities and cold and clammy skin. The patient complains of vertigo, tinnitus aurium. The pulse is small and rapid, the temperature low and the respiration superficial. The abdomen is painful and on percussion presents areas of dullness.

The common type of hemorrhage following splenic rupture is, however, not so striking. The extent and nature of the rupture determines the amount of hemorrhage. The extravasated blood may become partly encysted or slowly escapes into the peritoneal cavity owing to clotting at the vascular orifice, vasoconstriction, muscle contraction, etc. The hemorrhage may become arrested by clotting as the blood pressure drops, to recur again as the patient's condition improves. The hemorrhage may be interstitial, forming simple ecchymoses or small subcapsular or intrasplenic hematomas. When the capsule itself is ruptured, the blood may either be encysted through the formation of perisplenic adhesions, or, in the absence of adhesions, effuse freely into the peritoneum.

Finally, there may be what is called delayed or secondary hemorrhage. In such cases, the patient makes a rapid apparent recovery and there are no immediate symptoms of internal hemorrhage. However, after a period varying from hours to days, the patient, especially after some exertion, some increase of intra-abdominal pressure, such as attends coughing, defecation, suddenly collapses with all the symptoms of severe internal hemorrhage. Rupture into the peritoneal cavity of a subcapsular hematoma[20] or the giving way of protecting perisplenic clots or adhesions may determine all the symptoms of acute anemia.

Pitts and Balance[18] in 1896 reported 17 cases of delayed hemorrhage after splenic ruptures. In the more recent literature, Schlegel[19] reports a case of splenic rupture in which 12 days intervened between the accident and the time of operation. In Cisler's[20] case, the interval was the same and the patient had left the hospital and had resumed his occupation. There were 1½ litres of blood in the abdomen following rupture into the peritoneal cavity of a splenic subcapsular hematoma. In Patel and Vergnory's[21] case, the free interval was 13 days, and in Eisenklam's[22] case, due to a fall out of bed, the interval was 19 days, which is the longest I find recorded. In Eisenklam's case, the spleen presented a nine-centimeter gaping tear in its parenchyma. In this case, 19 days after the traumatism, the stretched splenic capsule burst and there resulted pain and shock, and an overflow of blood into the peritoneal cavity. Previous to the involvement of the peritoneum, the patient had experienced little or no discomfort.

Blood. In a few cases, diagnosis was based on the blood examination revealing a large fall in red blood corpuscles. Butler and Carlton[8] in 1926 reported 9 cases; in all the patients, except one, the leukocyte count was about 16,000. In the case reported by Koster,[23] in which the patient

was struck by an automobile, the blood count showed erythrocytes 2,500,000, leukocytes 12,200, and hemoglobin 35 per cent; in all my cases, the red blood count was low.

Thoracic Injury. Chalier[12] in a recent article has drawn attention to the costal injuries so frequently associated with rupture of the spleen. When the injury is of a crushing injury, some of the ribs are likely to be fractured. The spleen is deeply imbedded under the diaphragmatic cupola and is protected by the inferior border of the thoracic cage. In order that a rupture be produced, Chalier thinks it is necessary that there be a concomitant lesion of the thorax which may amount to a fracture of the ribs, and in the case reported by him (an automobile wreck case), and in some reported by other clinicians, there was such an injury. Three of the 9 cases reported by Butler and Carlson showed such an injury; there was a rib fracture in one of my cases. In general, the literature shows that the possibility of such an associated injury has been frequently overlooked; it probably was present but not noticed in many of the recorded cases. It is stated to have been observed in from 10 to 15 per cent of the published cases.

DIAGNOSIS

From the foregoing it can easily be inferred that an exact pre-operative diagnosis of splenic rupture is not always easy, is not always possible even though signs and symptoms may be very suggestive, very presumptive. Diagnosis ought to be based on the patient's previous state of health, the circumstances attending the injury and, particularly, on the mode and time of appearance, grouping and evolution of the symptoms. Although splenic rupture may follow any abdominal traumatism, it is more likely to occur if violence be applied either laterally on the external face of the base of the thorax or from the front backward on the anterior abdominal wall in the left superior quadrant.

Failure or delay in diagnosis aggravates the prognosis. In Berger's collection of cases, a pre-operative diagnosis was made in only 15 per cent. In 19 previously unpublished cases, observed either by Quenu and his colleagues, a clear diagnosis was made in 8 and a probable diagnosis in 3. In the 151 operated cases of traumatic splenic rupture which Quenc collected from the literature, an exact pre-operative diagnosis was made in 43, and in 15 others a diagnosis of internal hemorrhage was made without precise location of the injured viscus. As a general rule, the exact diagnosis followed an exploratory laparotomy indicated by the symptoms of acute abdominal hemorrhage. In my own cases, the operative indication was internal abdominal hemorrhage, an injury to the spleen being strongly suspected.

Quenu thinks that a diagnosis of traumatic splenic rupture can be made in the latent period, when a patient who has recently received an injury involving the left hypochondrium, shows a certain sensitiveness in this region, as well as a certain degree of persisting abdominal wall contraction, especially if the temperature keeps about 38° C.

Differential Diagnosis. Rupture of the liver may stimulate splenic rupture, especially in a child having a well-developed left lobe of the liver. Splenic rupture may simulate rupture of the left kidney, but the latter condition is associated with hematuria. Ruptured gastric ulcer is accompained by more intense peritonitic phenomena and by frequent hematemesis. In a case reported by Wallace,[24] the diagnosis was cholecystitis, but in this case the splenic rupture had occurred two years before, following a blow from a car and the ribs had been fractured but the patient had recovered spontaneously. Moreover, the case was complicated as being one of transposition of viscera. In women of the

child-bearing age, a ruptured ectopic fetal sac would have to be excluded.

EVOLUTION

When the rupture is not very extensive and only a small hematoma intra-splenic or peri-splenic results, the effused blood may in time become absorbed or encysted; it may initiate a fibrous tumor by organization of the clot; or it may undergo purulent transformation. In Wallace's case, above referred to, the ruptured spleen was found in a mass of adhesions; it was fibrous and atrophied.

When not very extensive, a rupture may heal spontaneously. (Descout.)[25] Hueggler[26] at the autopsy of a patient who had died from a hepatic neoplasm 15 days after a splenic rupture, found the splenic tear closed by a resistant thrombus.

If a splenic rupture be left to its own evolution, the mortality varies from 38 to 90 per cent, according to different statistics. Of 168 cases collected by Berger in 1907, 145 died the first day, the fatal result being due to hemorrhage in 90 per cent. The prognosis is much better in children; Fevrier[27] reported 15 cases occurring in patients under 20 years of age; 12 of these recovered. Quenu found that the mortality of splenic rupture treated by splenectomy in patients under 20 years old was only 14 per cent as compared with 32 per cent in patients above that age. Schlegel found that 15 cases of splenic rupture treated by splenectomy within 1½ to 12 days after the occurrence of the accident gave 12 recoveries.[19] The condition of delayed hemorrhage has already been alluded to.

COMPLICATIONS

Traumatic rupture of the spleen may be the only lesion present; it may be one of two or more, near or distal, associated lesions. Contusions, lacerations and ruptures of the left kidney, pancreas and liver are the most frequent complicating lesions. Chavannez and Guyot state that rupture of the left kidney has been found in 25 per cent of the reported cases of splenic rupture. Havlicek[15] and Zeano[29] each report a case of simultaneously ruptured spleen and pancreas. In these two patients, removal of the spleen was followed by recovery. Co-existing gastric, diaphragmatic or other injuries may aggravate the patient's condition.

PATHOLOGY

In traumatic splenic rupture, the lesion may vary from a simple contusion characterized by sub-capsular ecchymoses and integrity of the capsule to multiple tears, T, Y-shaped or stellate, fragmentation or even complete avulsion of the viscus from its vascular pedicle. There may be a crushing or a bursting of the organ. Pohl[30] in 1910 reported a successfully operated case in which a child 3½ years old was crushed beneath the wheels of a carriage; the splenic vein alone was torn, the artery being uninjured.

In some cases, there is only an intra-splenic effusion of blood or a hematoma of greater or lesser volume which, as already stated, may form the starting point of a serious or fatal secondary hemorrhage. In splenic rupture proper, the capsule is usually torn and there may be detachment of a portion of the substance of the spleen into the abdominal cavity.

Opinions vary as to whether the internal or external face of the spleen is most usually injured; the lower part of the spleen being least protected is more frequently the site of injury.

TREATMENT

From the high mortality which attends the expectant treatment of splenic rupture, it is evident that the only effective treatment is operative. When a fairly probable diagnosis has been established, delay is dangerous. A properly performed needless laparotomy is practically without dangers; a non-operative treated splenic rupture is almost invariably fatal. Delay only serves to diminish chances which operative aid may have to offer. The surgical measures may be divided into conservative and radi-

cal procedures. The exposure of the spleen may be done under either paravertebral or general anesthesia. A sandbag is placed under the left side chest, so as to secure a better view of the left dome of the diaphragm.

The conservative measures applicable are cauterization, ligature of the splenic pedicle, tamponade and splenorraphy. Ligature of the vascular pedicle en masse, is liable to cause necrosis of the organ. It is to be rejected. If the splenic artery alone is ligated, atrophy of the parenchyma results. It may perhaps be employed when there are extensive vascular adhesions. Conditions very rarely warrant its performance.

Tamponade, though it may be quite effective in arresting hemorrhage, has two important drawbacks. At best, it is a very uncertain measure and it eventually leaves a weak spot in the abdominal wall. Tamponade either alone or combined with simple suturing, may be resorted to in cases of limited rupture or when the condition of the patient does not warrant a long operation. Berger's statistics include 10 cases of splenic rupture treated by tamponing with 1 death and Quenu gives 15 cases with 2 deaths.

Splenorraphy was first done by Lamarkia in 1896 and has been employed by many surgeons since then. Owing to the inaccessibility and friability of the spleen, it is generally a difficult operation; its general mortality has been reported as 50 per cent, but Willits, in 1919, found it to be 25 per cent. If splenorraphy is done, the suture line should be covered with omentum as Gourrin[31] suggests, both for hemostasis and perintonization. It is only rarely practicable.

In general, splenectomy is the operation of choice in any important splenic rupture particularly a transversal rupture or in extensive lacerations. It insures complete and permanent hemostasis. In the absence of perisplenic adhesions, it is of easy and rapid execution. Partial splenectomy is indicated when the lower pole of the spleen is completely detached and the remaining part integral.

A median incision may be employed for an exploratory laparotomy but the splenectomy (subcostal) incision should be used when a fairly precise diagnosis is made. It must be said, however, that the diagnosis is usually a probable diagnosis. To the median incision may be added a transverse incision extending towards the loin (3). An adequate incision is most serviceable in cases of associated visceral lesions. One must be careful in ligating the vessels of the hilus not to injure the tail of the pancreas. It is preferable to close the abdominal wall without drainage, drainage weakening the abdominal wall and predisposing to subphrenic suppuration.

Splenectomy appears to have been first done by Roddick, in 1885, who removed the organ through a small opening in the lumbar region. In Berger's statistics, 135 splenectomies gave a mortality of 38.7 per cent. Borgsitter in 1909, who collected 203 cases of splenectomy (not all traumatic cases), found the operative mortality of splenectomy to be 35.3 per cent. Willis in 1919 found that the mortality of splenectomy for traumatic rupture cases was 28.8 per cent. Schlegel states that in fifteen cases in which an interval varying from 1½ to 12 days elapsed between the occurrence of the injury and the operative relief, splenectomy gave 12 recoveries.

In the Mayo clinic[32] the mortality in 417 cases of splenectomy for all conditions, done from 1904 to 1926, is stated to have been 10.3 per cent. Only 10 of these were traumatic cases. According to Quenu, the general mortality of splenectomy for adults above 20 years old is 32 per cent and for individuals under 20 years 14 per cent. The operation can be successfully combined with nephrectomy as in Hersey's[33] case.

Is splenectomy, in the human subject, attended with lasting undesirable after-ef-

fects? This can be more intelligently answered after a brief enumeration of the functions (33) of this organ. Removal of the organ means a temporary, a partial or complete abolition (35) of those functions partly or wholly dependent on the spleen. What are those functions?

a. During prenatal life, the spleen participates in the formation of the leukocytes and of red blood-cells. After birth, it takes part in the destruction of deteriorated or disintegrated red blood cells. It has been called the "graveyard" of the red blood corpuscles. The liberated hemoglobin of the destroyed blood corpuscles is conveyed by the splenic vein to the liver and there transformed into bilirubin. According to some investigators, the liberated hemoglobin may be manufactured into bilirubin in the spleen itself.

b. It forms white blood corpuscles, particularly lymphocytes. A large number of lymphocytes are produced by the Malpighan bodies. "All the white blood-cells have defensive functions, especially the large mononuclear endothelial leukocytes." Mayo.

c. It assimilates iron and is a storehouse for it, especially the iron liberated from the decomposition of red blood-cells. The liver, on the contrary, is the storehouse of the iron ingested; it may partake of the spleen function. The spleen is regarded by some as the principal organ of the reticuloendothelial system, playing a dominant role in iron metabolism.

d. It acts as a scavenger, as a filter, separating worn-out cells, infectious and toxic agents from the blood-stream. These, under normal conditions, are either destroyed by the phagocytic activities of the spleen or conveyed into the liver for destruction or detoxication. As the lymphatic glands act upon the lymphatic stream, so the spleen acts upon the blood brought into it. The chief function of the spleen is that of filtration.

e. It has some share in nitrogenous metabolism and it plays an important part in the digestion, consumption and utilization of food (Richet). During digestion, the spleen expands and contracts synchronously with the digestive periods. "That the spleen must be of some significance in digestion has been prompted by the gland's intimate anatomic connections with the portal system; its blood supply from the celiac axis, its proportionately excessive atrophy during starvation and inanition, and by reference by many experimental investigators, as well as by many clinicians, to a state of hunger and voracious appetite after splenectomy." (Kahn) [38].

f. It acts as a kind of vascular reservoir to the portal system and to the vessels of the stomach.

g. Under normal conditions, it produces blood-platelets.

h. It elaborates ferments, and also a hormone which has a stimulating action on bone marrow. By its pump-cells, it influences blood pigments and metabolism. The bone marrow is called the "cradle" of the red-blood corpuscles.

i. It is considered by some inevestigators as a member of the sympathetic endocrine system. It has no external secretion and it has not been demonstrated that it has an internal secretion.

Following the removal of the normal bone marrow. By its pulp-cells, it influspleen as in traumatic rupture, the pathologic spleen, as in splenic neoplasms, etc., certain changes usually occur. In cases in which these changes fail to develop, the existence of one or more accessory spleens may be suspected. After splenectomy, there is noted.

a. A secondary anemia due in part to the operative hemorrhage incident to splenectomy, and in part to the loss of the spleen.

b. An increased resistance of the red blood-cells to various hemolytic agents (hypotonic salt solution, hemolytic serum, etc.)

c. A lessened tendency to hemoglobinuria, to jaundice and sometimes even an

absence of jaundice after the exhibition of hemolytic agents.

d. An increase in the total fat and cholesterin content of the blood which gradually decreases and returns to normal (Eppinger). This has been observed both in splenectomized dogs and in the human.

e. A transient decrease in the antiseptic and bactericidal properties of the blood serum which rapidly returns to the normal. The agglutinins and opsonins remain unaltered (Bucalossi). The bodily vigor and resistance are decreased.

f. Changes in the blood-picture which usually persist for several months (35, 38). The blood-picture usually returns gradually to normal. In some cases, the post-operative anaemia is permanent (5).

1. Appearance of polycythemia, 5,500,000-7,000,000 per cu. m.

2. Numerical increase in lymphocytes and in eosinophiles and in blood-platelets.

3. Presence of nucleated red blood-cells.

4. Morphological changes in the red blood-cells.

g. A disturbance in the iron metabolism. (36) An increased output of iron in the faeces which lasts for from four to six weeks.

h. An hypertrophy of remaining splenic fragments, of accessory spleen or spleens, even to the size of the normal spleen, a hyperplasia of the lymphatic glands of the greater curvature of the stomach and of the omentum, a hyperplasia of lymphoid tissue throughout the body, and an increase in the size of the liver. This hypertrophy compensates in time for the loss of the spleen.

i. A weakening of the digestive power for a period of several months. There is a temporary diminution in gastric secretion.

j. Owing to the release of the controlling influence of the splenic hormone, the bone-marrow functions to excess. It also changes from its normal yellow fatty character to a red cellular hyperplastic type.

k. A decrease of fat in the feces.

The spleen is an important organ. Nevertheless, animal experiments and clinical observation amply show that splenectomy does not noticeably impair growth, reproductive power, general health, nor apparently shorten life expectancy. That this ductless gland, the largest in the body, is not as essential an organ as the liver, the liver, the thyroid gland, the pancreas or the adrenals, is evidenced by its rare absence at birth and by the survival of patients after its removal. After splenectomy, the functions of the organ are vicariously assumed by other elements of the reticulo-endothelial system. These elements are found in the sinuses of the lymph glands, in the capillaries of the liver lobules (stellate-cells) of Kupfer) and of the bone-marrow, in the connective tissue (wandering cells), in the adrenal cortex, in the hypothysis, etc. The cells of the reticulo-endothelial system devour deteriorated blood-platelets, effete red and white blood-corpuscles and metabolize all of these.

Accessory spleens occur; they vary in size, location and number (from one to twenty). In a patient operated (34) on for strangulated intestine, fifteen years after a previous splenectomy for splenic rupture, the following findings were noted: "The whole of the peritoneum covering the small intestine and mesemtery was covered with small tumors, varying in size from that of a pin's head to about one inch by half an inch . The tumors were either sessile or pedunculated and appeared to have involced only the peritoneal covering of the gut. There were perhaps 200 to 300 tumors. The general appearance suggested splenic tissue; they appeared to be quite innocent in character. The microscopical examination by the Pathology Department, University of Sheffield, of one specimen removed for examination, showed that it was

a small mass of splenic tissue, containing pulp with sinuses and Malpighian bodies. The whole structure presented a dense fibrous tissue capsule, and an increased amount of fibrous tissue in the trabeculae. In this case, evidently, at the time of splenic rupture living splenic cells were set free and implanted in the peritoneal cavity. The amount of splenic tissue so formed appeared to be quite equal to that in a normal spleen."

According to Koster, there appears to be some general compensatory lymph gland enlargement following splenectomy; Jolly and Lieure[30] have reported that in animals there is a possibility of a real regeneration of the spleen; and O'Connor[40] mentions the possibility of accessory spleens functioning after splenectomy.

CONCLUSIONS.

1. Traumatic rupture of the normal spleen is becoming more common with the increase of automobile accidents. Three personal cases of this kind are reported.

2. The symptoms of splenic rupture are in general not pathognomonic except perhaps Pitts and Ballances sign of persistent left-sided dullness and with shifting right-sided dullness on percussion.

3. The patient's safety lies in early and precise diagnosis, followed by immediate laparotomy and appropriate operative relief.

4. The prognosis in cases of splenic rupture left to their own evolution is extremely bad. In the presence of splenic injury and severe internal hemorrhage, immediate or delayed, the most conservative form of treatment is early splenectomy. It secures complete and permanent hemostasis. It is a life-saving operation.

5. Removal of the ruptured normal spleen is usually an operation easy and rapid of execution. The removal of the pathological spleen embedded in or bound down by dense perisplenic adhesions may present great though not insuperable difficulties. Drainage is rarely indicated.

6. The operation of choice for traumatic splenic rupture is splenectomy, performed under paravertebral or general anesthesia.

7. It is the present belief that the spleen is not essential to life or well-being, and that splenectomy does not lessen the individual's resistance to infection or does not shorten the life of the individual.

8. Earlier operation, improved technique and judicious post-operative treatment have lowered and improved the results of splenectomy.

CONCLUSIONS

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THE DIAGNOSIS AND TREATMENT OF CELIAC DISEASE, WITH REPORT OF TWO CASES.*

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NEW ORLEANS.

Celiac disease is not a common condition, but occurs rather infrequently. However, the difficulties met with in handling cases of celiac disease and the fact that the diagnosis is frequently missed, constitute a reasonable excuse for bringing this subject to your attention.

The condition was first described by Gee[3] in the reports of St. Bartholemew's Hospital for 1888. It is known also as chronic intestinal indigestion; Herter[5] called it intestinal infantalism. After the disease was first described by Gee[3] in 1888 there was little heard about it until it was revived by Herter[5] twenty years later. Within the past ten or fifteen years the literature pertaining to celiac disease has become rather voluminous and there has been considerable research done in an effort to determine the etiology.

The etiology is unknown, although many theories have been advanced to explain its occurrence[2]. The age at which the celiac syndrome manifests itself is markedly constant, usually coming on at from one to three years, after the child has been given a mixed diet. It is generally claimed that it never occurs among the breast fed, although J. H. Hess has reported two such cases[6]. The fact that cases of celiac disease do not tolerate fats, carbohydrates, nor fresh cow's milk is well established. This has led to the belief that the condition is due to the liberation of certain noxious substances in the intestinal tract, as a result of the action of bacteria upon fats, carbohydrates, or fresh cow's milk. This theory has neither been proven nor refuted.

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Another theory offered to explain the occurrence of the disease is, that there is a congenital deficiency in the secretion of the digestive enzymes. The rapid loss in weight when the child is on a mixed diet containing fats, carbohydrates and fresh cow's milk and the rapid gain in weight when a strictly protein diet is substituted, more or less disprove the theory of deficient enzymatic secretion. This theory was definitely exploded by Taylor[13] in 1922 and more recently by Bauer[1] in 1928. These authors found that the digestive enzymes present in cases of celiac disease were the same in kind and quantity as for healthy children. Sperry and Bloor[11] stated in 1924 that the fat which was taken as food was different from the fat found in the stools. They called attention to certain physical and chemical similiarities between the blood lipoids and the fecal lipoids. They believe that these isometric properties of the blood and fecal lipoids make it reasonably certain that the fatty material of the feces has its origin in the blood. Bauer[1], in his work referred to above, concludes that: "The etiology of celiac disease must be sought in some agent or influence that disturbs that side of the metabolic balance which is concerned with the transfer of used fats and carbohydrates back again into the intestinal tract."

DIAGNOSIS.

The prodroma shows up rather constantly at from one to three years, after the child has been given a mixed diet. The history in most cases is that the child had been well and hardy up to one year of age, or until shortly after beginning the mixed diet. The mother first notes a cessation of the growth of the child, or maybe an actual loss in weight. This is concomitant with nausea, anorexia, vomiting, diarrhea and enlargement of the abdomen. The child usually presents a sallow, waxy, or paste-like appearance, and the legs are liable to be too small in proportion to the rest of the body. Some cases may show edema of the face, or of the extremities. The stools are voluminous, of a semi-solid character, of grayish color, contain an excessive amount of fat and range in number from three to five a day. If fats, carbohydrates and fresh cow's milk are withdrawn from the diet and the child given a strictly protein diet in sufficient quantity, the above symptoms quickly subside and there will be a rapid and steady gain in the weight. Indiscretions in the matter of diet cause prompt reoccurrence of the symptoms. Generally these children are pampered and spoiled by the mothers' indulgences so that they are extremely hard to manage. They are mentally alert and become rather adept in having things their own way by whining and whimpering. The blood sugar is liable to be low and the feces contain excessive amount of fats. Roentgen-ray examination of the gastro-intestinal tract usually shows a dilated colon. The three cardinal signs upon which a diagnosis of celiac disease may be based are: (1) Loss of weight, or stationary weight, without other apparent illness; (2) a prominent, doughy abdomen, relatively free from tympanites; and (3) voluminous, porridge-like stools, grayish in color, of semi-solid consistency and containing an excessive amount of fat.

TREATMENT.

First of all the mother should be informed that the treatment at best will require months and maybe years, of honest and faithful co-operation. It should be made clear that no half-way measures in the matter of diet and management of the child will suffice. Strict adherence to the diet and regimen are absolutely essential to the treatment.

Gee[3] stated in 1888 that cow's milk was the least suited food; Herter[5] in 1908 recommended a strictly protein diet; Rurah[8] introduced soy-bean flour in 1911; Still[12] advised the complete avoidance of fresh cow's milk in 1918; Howland[7] outlined his three phased high protein diet in 1921, which has recently been modified by Sauer[10], who makes the plea for standardization in the dietary treatment.

The diet which I shall describe is the so-called three phased high protein diet of Howland, as modified by Sauer. The original diet as recommended by Howland specified the regular Eiwiss milk, but Sauer in his modification suggests the use of dried protein milk, as found on the market at the present time. He also includes over-ripe bananas in the third phase of the diet, whereas Howland recommended cereals, etc.

Phase 1. Protein milk exclusively. One packed level tablespoonful of dried protein milk per pound of body weight in twenty-four hours. This may be prepared by mixing it with either water, or Ringer's solution. The mixture may be prepared in the form of a thick creamy mixture to be fed from a spoon, or in the form of a thin liquid mixture to be fed from a bottle or from a cup. It may be sweetened with liberal amounts of saccharin if desired. The twenty-four hour quantity should be divided into four feedings, with plenty water given in between feedings. The duration of this phase of the diet depends upon the individual response of the child, but usually it is not necessary to continue it for longer than from five to six weeks. The child is given nothing but protein milk until the anorexia, vomiting, diarrhea and abdominal distention have cleared up and the child has begun to show gain in weight. It is best to begin this phase of the diet with several tablespoonfuls less than the number of pounds of body weight, gradually increasing the amount. The rate of increase in the amount of the food should be guided by the presence or absence of anorexia, vomiting, diarrhea, etc.

Phase 2. When the best previous weight has been regained and the symptoms of nausea, vomiting, diarrhea and abdominal distention have cleared up, milk curd, egg, scraped beef, beef juice and cottage cheese may be added to the protein mik diet. The weight of the child should continue to increase rapidly, without recurrence of the symptoms. During this phase of the diet, cod liver oil, orange juice and iron should be added in gradually increasing amounts. The blood sugar is liable to become too low and the child should be watched to prevent hypoglycemia.

Phase 3. It is during this stage of the diet that carbohydrate is gradually added. Well-cooked meats and well-cooked cereals are gradually added. Hass[4] claims that well ripe bananas afford the best form of carbohydrate. Some investigators have even added bananas in the first and second phases of the diet, with good results. As many as ten or fifteen bananas may be consumed within the course of a day.

CASE REPORTS.

Case I. Ethel T., a white female, aged 3 years, weight 21 pounds, was admitted to the pediatric division of the out-patient service, Touro Infirmary, New Orleans, November, 1926. At the time of admission she was suffering with acute bronchitis and a little later was treated also for pyelitis. Although the history in this case was classically that of celiac disease, a definite diagnosis was not made at the time of admission, due to certain atypical findings.

The child was of full term and normal delivery, being the first and only pregnancy of the mother. The family history was unimportant. She was breast-fed for the first two months of life, but at that time was given a modified cow's milk formula, due to failure in the breast-milk supply. During the first year of life she made normal progress in both growth and development—weighing 25 pounds at one year of age.

At thirteen months of age she was given the usual mixed diet, consisting of cow's milk, egg, meats, vegetables, cereals and fruits. She made no gain in weight on this diet, and at eighteen months of age, shortly following an attack of measles, she began to manifest certain digestive symptoms, such as food nausea, anorexia, vomiting and diarrhea, with only slight enlargement of the abdomen. The diarrhea would come on for several days at a time and then alternate with constipation, which would last for two or three weeks at a time. The stools during the diarrhea attack ranged in number from three to six a day, were voluminous, of a grayish color, of porridge-like consistency and very fetid. During the attacks of constipation the stools were smaller, firmer and of lighter color.

The physical examination was essentially negative, except for slight abdominal enlargement and

the marked undersize and underweight of the child for her age. She appeared to be mentally precocious and gave the impression of a badly spoiled child. She was very "fussy" and whined and whimpered over the least sort of thing.

The urine showed glucose present in amounts varying from faint to heavy traces and occasionally none at all. The blood sugar was low (53 mgm. per cent). Examination of the feces was negative for parasites and ova. The Wasserman test was negative. Roentgen-ray examination of the gastro-intestinal tract was negative.

The initial diet, after the diagnosis of celiac disease had been made, consisted of 1½ pints of skimmed milk daily, scraped beef, beef juice, egg, cottage cheese, spinach, peas, beans, tomatoes, orange juice and small amounts of dry toast. She made a rather rapid gain in weight at first, but her weight promptly fell back to its zero level at the first recurrence of diarhrea. She was kept on this diet for several months and the weight showed wide fluctuations, up and down.

On May 18, 1927, she was given protein milk exclusively. For the first two weeks the food was prepared by adding 14 level tablespoonfuls of protein milk to one quart of boiled water. Four feedings of 8 ounces each were given daily. During the third and fourth weeks the protein milk was increased to 16 level tablespoonfuls and on up to 18 tablespoonfuls for the fifth and sixth weeks. At the end of the sixth week the child had gained two pounds, the nausea, anorexia, vomiting and diarrhea had ceased and the stools were normal in number and character. The blood sugar rose during this time from 53 mgm. per cent to 83 mgm. per cent and the sugar in the urine had disappeared.

On June 27, 1927, the second phase of the diet was begun. To the protein milk diet, as described, beef juice, scraped beef, cottage cheese, egg and bananas were added. Cod liver oil and orange juice were also added. Two grains of saccharated ferrous carbonate were given three times a day. Up to October, 1927, a period of five months, the weight of the child had advanced from 22 pounds to 30 pounds and there had been no recurrence of the symptoms. She was lost sight of here and further progress notes are not available.

Case 2. Rose Mae, a white female, age 4 years, weight 27 pounds, was admitted to the children's division of the out-patient clinic, Touro Infirmary, New Orleans, August, 1927. The child was brought to the clinic because of failure to gain in weight, giving a history which typified celiac disease.

She was of full term and normal delivery, being the second child. The family history was unimportant. She nursed the breast up to one year of age and was then given the usual mixed diet, which consisted of milk, egg, meats, vegetables cereals and fruit. For the first two years she made normal progress in growth and development, but at about the end of her second year the mother noted a cessation in growth at first, which was followed later by an actual loss in weight. Coincident with the loss in weight the symptoms of anorexia, vomiting, diarrhea and abdominal enlargement were manifested. The diarrhea had been constantly present and stools have ranged in number from three to five a day. The stools were voluminous, semi-solid in character, of grayish color and very fetid. Up to the present time the child had had none of the diseases of childhood. Within the previous two years the mother had sought the advice of a number of physicians and she described her plight by saying: "I am about ready to quit." On going into the dietary history it was found that the mother had made the observation that cow's milk intensified the symptoms.

The child looked to be about two and one-half years of age, but her actual age was four years and she weighed only 27 pounds. She was pale and had a sallow, waxy appearance. The abdomen was markedly enlarged and the legs appeared disproportionately small for the rest of the body. Th stature was dwarfed, but the posture was fairly good. The glands in the anterior triangles of the neck were slightly enlarged. The tonsils were hypertrophied.

Blood examination showed a secondary anemia. The feces was negative for parasites and ova. The Wassermann test was negative. Roentgenograms of the gastro-intestinal tract were negative.

This patient did not remain in the clinic for treatment, but sought the services of a private physician, Dr. E. A. Socola, who concurred in the diagnosis of celiac disease and who has been kind enough to supply me with data from his private records to show the results of his treatment.

On Septmber 2, 1927, Dr. Socola began the dietary treatment, which consisted of a high protein diet, with liberal amounts of well ripe bananas. The diet employed did not exactly conform to the plan outlined by Howland, but the results were, nevertheless, very gratifying, as will be seen. At the time treatment was begun the weight of the child was 27 pounds. Three weeks later she began a rapid and steady gain in weight. Within six weeks her weight had reached 29 pounds and by the end of the twelfth week 32 pounds. The anorexia, vomiting and diarrhea had cleared up by the fourth or fifth week and the stools had

resumed their normal character. The child at the present time is making favorable progress and has had no recurrence of symptoms.

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DISCUSSION.

Dr. E. F. Naef (Baton Rouge): I want to confine my remarks to the diagnosis and treatment as stated in the subject of the paper. The diagnosis of celiac disease should be a simple thing. The condition that it would most likely be confused with, on first observation in a fully developed case in the run-about child is, of course, tuberculous peritonitis, as you would view the case after the inability to walk had developed, with the prominent abdomen, and the marked anemia almost to a cachexia.

Of course, the absence of temperature is an outstanding point, not commented upon in this paper. We have our signs for the determining of the presence of accompanying tuberculosis in celiac disease; we do not have any associated ascites in celiac disease, the distension being due to the marked atony of the intestinal musculature, particularly of the colon. Of course, we do have the stools showing the rather typical character, large, voluminous, oatmeal stools, gray in color or green, depending upon the diet.

Another point which should be emphasized is the matter of almost complete absence of secretion of hydrochloric acid. Gastric analysis, in these cases should show diminished hydrochloric secretion to a complete anacidity. Many cases as regards this anacidity will progress under treatment with gain in weight, and continued improvement with no marked effect on the secretion of hydrochloric acid.

Another point, as regards the stools, we find increased calcium output in these cases, and it points another avenue in the matter of therapeutic aid. These cases should receive calcium, and I make it a point to give these patients a form of calcium in addition to a three phase protein diet as mentioned by Dr. Williams. The furnishing of acids in the form of fruit acids is very helpful in the early stage, and the protein milk, together with the use of lactic acid milk sometimes reinforced with some readily digestible monosaccharid, Karo corn syrup preferably, is helpful in the first stage.

I might say, in closing, that these cases unfortunately, do not respond as rapidly to treatment as we might have gathered from listening to the paper. I think if we can get a gain in these cases of one-half pound a month, we are doing very well. The condition is essentially chronic and extends over a period of weeks, months and years. And, in the matter of chronicity, I want to remind you again of the fact brought out by Dr. Holt some years ago, of the development of a sudden ability in these cases to metabolize their food properly, sometimes as late as puberty; they continue to struggle along, under sized, extremely mal-nourished, and after passing a certain age, out of a clear sky they begin to gain in weight, and metabolize their food more properly.

About a further treatment, I recently have used liver extract, but in the two cases in which I have used it, there was an increase of the diarrhea and the use of it was discontinued.

Dr. J. A. Crawford (Lake Charles, La.): The essayist in this paper, and Dr. Naef in his discussion of the paper, have covered the subject so well that there is little left for me to say.

I was not present when the doctor began to read, due to the fact that I thought that we were to meet on the second floor as we did this morning, but I did get to hear the most of the paper read.

There are two or three points not mentioned in this paper that I think are important in the diagnosis of celiac disease: first, celiac disease is a very rare disease; I doubt very much if the average general practitioner will see a case of celiac disease once every five years, and certainly he will not recognize it; second, the extreme offensiveness of the celiac stool; of course, all stools are offensive, but one who has examined the celiac stool will never forget the extreme mal odor; it is very offensive.

There is some evidence to lead us to believe that celiac disease is somewhat infectious, well

babies who have associated with celiac cases have developed celiac disease; these instances are rare, however, and further investigations will have to be made before we can confirm this report. Koch's postulates have never been fulfilled in experimental work in monkeys, and no cases have been produced experimentally.

No case of celiac disease has developed in a breast-fed baby while breast fed; practically all cases develop during the second years.

The three-phase diet as emphasized by the essayist is very proper and will cure all cases if carried out at the right time.

Dr. J. D. Bloom (New Orleans): I appreciated the paper of Dr. Williams, but I feel that I may be counted amongst those of you who have in the past overlooked some of these so-called celiac cases. On the other hand, I am not convinced that the diagnosis is an easy one. Only recently I had two cases, one in which the diagnosis finally proved to be aerophagia, and the second case, where a diagnosis of celiac disease was ultimately appendicitis—chronic appendicitis.

When we consider the symptoms of celiac disease as a chronic intestinal indigestion, it is quite confusing. We realize that this entity is a chronic condition, also that it is an indigestion, but heretofore, we have considered, generally speaking, chronic intestinal indigestion due to carbohydrates, and have forgotten the possibility of chronic appendicitis.

Dr. Williams (closing): I do not believe I have anything further to add, I am sorry I did not get through with my case reports.

Chairman Debuys: You may utilize this time for your case reports.

(Dr. Williams read case reports.)

"As stated, the physical condition was negative, except for the marked undersize and underweight of the child." I wish to thank you gentlemen who entered into the discussion of the paper.

REVIEWS

SURGICAL DISEASES OF BILIARY SYSTEM*

EARL GARSIDE, M. D.,**

NEW ORLEANS.

PART II.

THE BILE DUCTS.

Surgical diseases of the bile ducts are most frequently obstructive in type. Except for injuries and congenital anomalies, lesions of the ducts are rarely primary, but usually occur as sequelae of pre-existing pathological conditions in the liver, gallbladder, or duodenum. Jaundice is the most constant symptom. Effects of the retention of pancreatic secretion may be noted if the distal portion of the common duct or ampulla of Vater is involved (Balo and Ballon[45]).

Variations from the normal arrangement of the bile ducts have been mentioned under "Anatomy." Congenital obliteration of the bile ducts is an anomaly which causes a very serious condition. The child may be jaundiced at birth or become icteric within the first few days. It is unusual for jaundice first to appear after several weeks. The liver is enlarged as may be the spleen also. Bleeding from the stump of the umbilical cord is a frequent symptom. The urine is, of course, bile-stained, and the stools are clay-colored. In making a differential diagnosis the principal conditions to be considered are congenital syphilis, icterus neonatorum, and Buhl's disease. The history and the Wassermann reaction will serve to distinguish the former condition, and the presence of clay-colored stools will rule out the latter diseases.

Congenital dilatation of the bile ducts causes recurrent attacks of jaundice, pain in the right hypochondrium, and a palpable cystic mass developing during childhood or youth. The condition is usually found unexpectedly during exploration of the abdomen.

The biliary passages are subject to both open and subcutaneous injuries. Direct injuries are produced by penetrating

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wounds, but certain blows produce injury without piercing the abdominal wall. The chief dangers from such wounds are hemorrhage and bile-peritonitis. Courvoisier collected 34 cases of sub-cutaneous injuries; the gall-bladder was most often involved, and injury of the common duct was second in frequency. Long[46] recently reviewed injuries of this type and reported a case of traumatic rupture of the bile ducts.

Cholangitis, or inflammation of the bile ducts, occurs in three forms: (1) acute catarrhal; (2) chronic catarrhal; and (3) suppurative and ulcerative.

Acute catarrhal cholangitis has little surgical importance except for its recognition as the case of mild painless jaundice. Relief of the catarrhal condition of the duodenum—to which it is secondary—by appropriate diet and mild catharsis, quickly resolves the disease and dispels the jaundice.

Chronic catarrhal cholangitis is usually attended by some obstructive lesion, as a stricture or stone, which will generally overshadow the co-existing cholangitis. If the condition is not relieved by conservative management, surgical intervention may be advisable, especially if there is an obstruction which can be removed at operation.

Suppurative and ulcerative cholangitis is caused when biliary stasis is accompanied by infection. There is a diffuse purulent involvement of the larger and smaller ducts. The cause of the obstruction is usually a stone which often is impacted and which completely blocks the duct. Other causes may be carcinoma, parasites, and cysts. Counsellor and McIndoe[47] have shown by the celloidin injection and corrosion method that there is always a marked dilatation of the bile ducts. The biliary passages are filled with bile stained pus. Multiple abscesses in the liver frequently result. The liver enlarges notably, and becomes tender. The gall-bladder is in a state of acute suppurative inflammation.

The symptoms and signs are those of acute infection superimposed on the usual manifestations of biliary obstruction. There is anorexia, malaise, and occasional paroxysms of pain. Jaundice is constantly present. There are severe chills, fever, nausea, vomiting, and depression. The pulse is rapid, and leukocytosis is marked.

Treatment, of necessity, is surgical. This disease is so frequently accompanied by profound sepsis and toxemia that the surgeon must usually employ all of his skill and judgment if his efforts are to be attended by success. If the condition be recognized early, sepsis and jaundice will not formidably dominate the clinical picture. These occur when the disease has progressed to a later stage, and add especial emphasis to the importance of preoperative treatment. The principles of treatment outlined under jaundice should be observed and special measures taken to support the patient and overcome hepatic insufficiency. Surgical intervention must be restricted to the accomplishment of the one prime requisite, namely, adequate drainage of the biliary system. This is best accomplished by cholecystostomy performed under local or regional anesthesia.

Stones in the common duct are usually secondary to stones in the gall-bladder. The phenomenon of bile pigment and cholestrin absorption by the dilated sacculi of the hepatic duct after cholecystectomy demonstrates the ability of the mucosa of this duct to assume some of the functions observed in the gall-bladder, and may, therefore, account for some of the stones in the hepatic duct and the common duct.

A gall-stone may start to pass down the cystic or common duct at any time. In its passage it is gripped by the muscular wall of the duct, and the spasmodic contraction gives rise to an attack of colic. The commonest site for the stone to be thus gripped in the neck of the gall-bladder or Hartmann's pouch. The calculus, therefore, will not enter the cystic

duct, but will either give rise to acute cholecytitis, hydrops, and empyema or float back out of the neck of the gall-bladder and give no symptoms, at least for a time. However, smaller stones will pass through the duct, and gradually dilate it, as has been shown by Counseller and McIndoe,[47] until this large stone may progress into common duct along with many other smaller ones. When this occurs, there will be obstruction to the flow of bile, either partial or complete. Jaundice, of course, will follow, the degree of which will depend on the completeness of the blockage of the duct. After the primary spasm relaxes, bile may pass the stone, and later, as the ducts dilate, a still freer passage of bile is allowed. With this increased difficulty in delivering bile to the duodenum, there is a proportionate increase of pressure in the duct system. The liver becomes enlarged and tender, but the gall-bladder, as a rule, is not dilated; on the other hand, it attempts to meet the demands of higher pressure in the ducts by increasing its contractile power by muscular hypertrophy. The infection attendant upon stone formation and biliary obstruction leads to scar formation of the gall-bladder, so that, in addition to the market hypertrophy of the walls, there is fibrosis and distortion. If, however, the obstruction be complete, as in carcinoma of the head of the pancreas, there will be no thickening of the gall-bladder wall, but rather a thinning of the wall, allowing increased distention. Observation of these facts gave Courvoisier the basis for the law that bears his name.

Symptoms of common duct stones are typically those of the severe colic which attends its passage down the duct and the jaundice which is always present in some degree. (Discussed also under "Jaundice.")

Treatment consists of cholecystectomy and removal of the stones from the duct, the steps in the accomplishment of which, however, are dependent on factors referred to previously. Care should be exercised to make certain that all stones are removed, as a high percentage of secondary operations are necessary to remove stones overlooked at the primary operation.

Strictures of the common duct may be classified in three groups: (1) Those due to obliterative cholangitis; (2) those associated with biliary fistula; and (3) those in which operative trauma has caused complete obstruction and persistent jaundice.

In cases that have undoubtedly had patent common ducts for months after primary operation the cause of stricture must be attributed to obliterative cholangitis. In many cases a review of the patent's history wil convince one that cholangitis existed before operation and that surgery was undertaken on the basis of mistaken diagnosis. At secondary operation a most difficult situation is encountered. There is often a widespread destruction of the ducts, and the surgeon will be fortunate to find a small portion of the hepatic duct which he can anastomose to the stomach or duodenum.

Stricture of the ducts may be accompanied by biliary fistula. Biliary fistulae arise spontaneously and as a result of injury. Those arising spontaneously are due to inflammatory or malignant ulceration, which establishes an abnormal passage between the biliary tract and some other organ or externally through the abdominal wall. Such fistulae generally indicate that there is obstruction of the common duct. External fistula is the most commonly recognized form and it generally leads from the gall-bladder rather than from the ducts. Long continued postoperative drainage is a common cause in that, in addition to making stricture of the ducts more probable, it produces a tract which may become a permanent fistula. Internal fistulae are most frequently established with the duodenum and more rarely there occurs cholecysto-colic fistulae or broncho-

biliary fistulae. The cases of stricture of the ducts with biliary fistula are more favorable for operation, as there is no jaundice and no biliary cirrhosis. The internal biliary fistulae may not require surgical treatment, and when such treatment is indicated operation generally is not as technically difficult as in the cases of external fistula with stricture of the ducts. In external fistula Murphy recommended the use of the fistulous tract as a duct to anastomose to the duodenum. This should not be done, as contraction is liable to occur. It is better to anastomose the remnant of the injured duct directly to the duodenum.

In the third group—that of stricture with immediate and complete obstruction—we experience the most difficulty both in preparing the patient for surgery and in the technic of the operation. The preoperative preparation of the jaundiced patient has been discussed previously. The technic of the operation has been amplified and modified by many surgeons. Perhaps the best method is to anastomose the stump of the duct to the duodenum. McArthur,[29] Walton,[48] Moynihan,[30] and Mayo[49] have recommended this technic with various personal modifications.

Carcinoma of the bile ducts is less common than of the gall-bladder. Its most common site of occurrence is at the junction of the cystic, hepatic, and common ducts. This location of the growth favors early mechanical obstruction. Hence, such a neoplasm is of definite surgical interest. In structure carcinomata of the bile ducts present the same types as in the gall-bladder.

Carcinomata of the ampulla of Vater are small, columnar-cell adenocarcinomata, and are important chiefly because of the vantage point at which they are located.

THE GALL-BLADDER

Diseases of the gall-bladder are especially amenable to surgery. Regardless of the fact that the gall-bladder undoubtedly has important physiclogical functions, it can be removed and no apparent abnormal reaction will result. However, the gall-bladder, in common with other organs that are readily dispensible, has little reserve, and is, therefore, quickly affected by abnormal systemic changes. The surgeon must treat the diseased gall-bladder more frequently than any other organ of the biliary system. Indeed cholecystic disease is one of the most common indications for an abdominal operation. Judd[50] believes that not only is gall-bladder disease recognized more often than it was formerly, but that it now occurs more frequently. Mentzer[51] reports that 5 per cent of 50,000 new cases admitted to the Mayo Clinic complained of gall-bladder trouble, and that 9 per cent more had gross or microscopic evidence of cholecystic pathology.

Cholecystitis is due to infection of the gall-bladder. Although acknowledging infection to be the exciting cause, mechanical, chemical, metabolic, and nervous factors are predisposing conditions which should not be disregarded. Biliary stasis in the gall-bladder may be produced mechanically by pressure of adjacent organs, the dependent position of the fundus, or an abnormal course of the bile ducts. Mann[52] hace emphasized the importance of chemical factors and has experimentally produced cholecystitis in dogs by the intravenous injection of Dakin's solution. Our understanding of cholesterol metabolism is inadequate. However, it seems certain that cholecystitis and especially "cholesterosis" of the gall-bladder bears a most important relationship to cholesterol metabolism. Experimental work by Mann and Giordano[53] shows that sympathetic stimulation may cause a spasm of the common duct sphincter analagous to pylorospasm which will give rise to biliary stasis.

Cholelithiasis may or may not be associated with inflammation of the gall-bladder. If calculi be present they are incidental, the cholecystitis being the essen-

tial condition. The passage of gall-stones through the bile ducts gives characteristic symptoms but otherwise cholelithiasis presents the same clinical picture as cholecystitis.

Primary infection of the gall-bladder is rare and is considered to occur after an asceptically formed cholesterin stone obstructs the cystic duct or initiates inflammatory changes by friction against the gall-bladder walls.

Secondary infection is far more frequent. The paths by which infection may reach the gall-bladder are many.

(1) Infection through the blood stream:

a. Through arterial blood in general septicemia.

b. Through venous blood only by process of thrombophlebitis.

Koch[54] and Chiarolanza[55] demonstrated clumps of bacilli forming capillary emboli in the gall-bladder wall in cases of typhoid cholecystitis. Rosenow[56] has especially emphasized the hematogenous origin of gall-bladder infection. Organisms, chiefly streptococci, isolated from the center of gall-stones, the gall-bladder, and the cystic lymph glands of patients treated by cholecystectomy exhibited an elective affinity when injected intravenously into animals, and produced lesions of the gall-bladder and bile ducts. Wilkie[57] produced intramural changes in the gall-bladder wall identical with those seen in cholecystitis, by intravenous injections of streptococci from the cystic lymph gland after the method of Rosenow. Mann[52] produced cholecystitis in experimental animals by the intravenous injection of Dakin's solution and showed that the blood stream serves as a route to the gall-bladder for toxic substances and chemical irritants.

(2) Infection by the lymphatic route depends upon the following series of events:

Hepatitis—Infection of intra-hepatitc lymphatics—extension of infection to the freely-anastomosing surface lymphatics of the liver—involvement of communciating lymph vessels in the outer wall of the gall-bladder.

If this be the sequence, the occurrence of hepatitis should be frequent. Graham [53] was the first to suggest the invariable existence of hepatitis in cases of gall-bladder disease. Small pieces of liver which he removed at operation for cholecystitis showed microscopic evidence of hepatitis in every case. Cholecystitis is frequently associated with inflammatory lesions of the appendix and other organs drained by the portal system. If the cholecystitis is caused by hematogenous infection, the organisms from the appendix must reach the gall-bladder through the hepatic artery after having traveled through the entire systemic circulation. Therefore, the infection might involve other organs as readily as the gall-bladder. Bile, infected with organisms from the portal blood, can cause cholecystitis only by contact infection. Such probably occurs very infrequently. Infection reaching the liver with the portal blood can, however, readily reach the gall-bladder by way of the intimate lymphatic connections through the attachment of the gall-bladder to the liver. Sudler[59] called attention to this definite lymphatic connection. Graham and his co-workers[85] have confirmed his idea and have concluded from their researches that infection most frequently reaches the wall of the gall-bladder by this "hepatolymphatic" route. The observation is now generally accepted, and has been especially expounded by Heyd,[34] Martin,[60] Moynihan,[61] and others. The reverse of this process has been mentioned by many writers, and constitutes a "vicious cycle" which may cause hepatitis to follow cholecystitis. Further evidence of invasion by the lymphatic route is the presence of bacteria in the serosa more frequently than

in the mucosa and bile. Wilkie[57] found the bile sterile in the majority of cases of chronic cholecystitis, whereas the other coats of the gall-bladder showed streptococci in 86 per cent of cases. C. H. Mayo has also called attention to the significance of involvement of the cystic lymph nodes as an index of cholecystic disease.

(3) Infection through the bile stream may reach the gall-bladder either by the descent of organisms from the liver or their ascent from the duodenum. That retrograde infection from the intestine does occur seems rather definite since foreign bodies are found in the gall-bladder which in the absence of a duodenal fistula could reach the lumen of the gall-bladder in no other way. The duodenum may be especially rich in bacteria in cases of hypochlorhydia and achlorihydria as has been shown by Moynihan.[61] That pathogenic micro-organisms and spores of molds are excreted in the bile has been demonstrated by the experimental work of Nichols.[62] The sequence of events in this route are: infection of the liver cell—hepatitis—destruction of parenchyma—infection of bile—contact infection of the gall-bladder mucosa. Graham and Peterman[63] were unable to produce cholecystitis by injecting large amounts of colon bacilli into the gall-bladder unless obstruction of the cystic duct or ligation of the blood supply was produced concomitantly. The mere presence of bacteria within the lumen of the gall-bladder should probably be regarded as of no more significance in producing cholecystitis than the presence of bacteria in the urine in the production of an inflammation of the urinary bladder.

(4) Infection by direct extension may reach the gall-bladder from any viscus to which it adheres, as the inflamed area of the stomach or duodenum in peptic ulcer.

PATHOGENESIS OF GALL-STONES.

The conclusion has been reached that three factors are of importance in causation of gall-bladder calculi: (1) Infection; (2) stasis of bile; (3) high cholesterin content of the blood. Of these three factors infection is probably by far the most important. Moynihan says, "Every gall-stone is a tombstone erected to the memory of the organisms dead within it; but sometimes the organisms are buried alive." This brilliant epigram is entirely true as regards multiple stones. The most frequent agent of infection occurring with cholelithiasis is the Bacillus coli; streptococci are frequently found, occasionally the Bacillus typhosus. These organisms have been found in nuclei of stones as late as 35 years after infection. However, more important than the occasional finding of bacteria entrapped in stones is their rather consistent isolation from the wall of the gall-bladder in cases of gall-stone disease. The Bacillus coli has been found in approximately 46 per cent of cases. Normally bile is sterile. However, bacteria readily gain entrance to the biliary tract by way of the liver, blood vessels, and lymphatics, and perhaps from the duodenum by way of the common duct. If the common duct is obstructed the bile becomes infected in a short time. It would appear, therefore, that stasis is an important factor especially in the presence of infection. As regards the importance of the third factor, the role of cholesterol, Moynihan[64] is of the opinion that mild inflammation in its early stage stimulates the activities of the gall-bladder and, due to the lymphatic engorgement, the mucosa becomes more absorptive. After the inflammatory process progresses the lymphatics become blocked, and since the mucosal absorptive activity continues, deposits of cholesterol occur on the mucosa. This condition is known as "cholesterosis" and may extensively involve the gall-bladder mucosa. A villus filled with cholesterol easily separates and becomes a nucleus for the rapid deposit of the cholesterol crystals, which soon envelop it to form a cholesterol gall-stone. Many such stones may be formed simultaneously.

Occasionally, however, we find, not many stones, but only one. A solitary stone is composed of pure cholesterin; it is not

caused by infection, though it may give rise to infection by becoming impacted once or oftener in the cystic duct. The cholesterin stone is referred to as the solitary "mulberry" stone in contradistinction to multiple, "faceted", gall-stones. The cholesterin stone is irregular and warty on the surface, like beeswax in appearance, almost translucent, and on section shows a characteristic appearance of spokes radiating from the center. It is the result of hypercholesterolemia, a condition often present during pregnancy. Furthermore, it has been shown that during menstruation the cholesterol content of the blood is high, and that during pregnancy there is a gradual increase, until it is approximately double normal in the ninth month. These observations help to explain the frequency of gall-stones in women and especially in women who have been pregnant.

Pathology. The condition of the gall-bladder expectedly will vary with the nature of the inflammation. Such involvement may be acute, and if so, is usually suppurative in character; or the inflammation may be chronic, and if chronic, it may or may not be preceded by an acute attack. Cholecystitis is frequently associated with gall-stones, but may occur without them. The longer the condition has lasted the more likely is it to be complicated by calculi.

Acute cholecystitis, according to Graham,[74] is found in only 7.6 percent of all gall-bladder diseases. It may not pass beyond the catarrhal stage, or it may develop into acute suppuration. In the former there is little to be seen by the naked eye except congestion of the organ. In the latter the gall-bladder is frankly inflamed. It is particularly likely to be distended with pus, if the outlet is obstructed. The contents of the inflamed gall-bladder consist of clear or bile-stained mucus or muco-purulent bilious material, which may sometimes contain much cholesterin in suspension or may be accompanied by gall-stones. The mucosa is of a bright red color. The peritoneal surface may be covered with an inflammatory exudate, and there may be adhesions to surrounding structures. The liver is often enlarged and its edge rounded. The cystic lymphatic gland ("sentinel gland" of Lund) is enlarged, as may be the glands along the common duct also. Microscopically the thickened and congested wall is seen to be infiltrated with polymorphonuclear leukocytes. Areas of hemorrhage are frequent, and much of the surface epithelium may be desquamated.

The inflamed and distended gall-bladder may rupture into the abdominal cavity or into a loop of bowel to which it may have become adherent.

Chronic cholecystitis may be the result of acute inflammation, or it may come on gradually and insiduously. One of the early changes is a loss of the normal bluish lustre. The surface becomes dimmed, whitish and opaque, and the wall feels appreciably thickened. The liver overlying the gall-bladder is gray, firm, and contracted. Usually a subcapsular fibrosis is evidenced by radiating striations of white scar tissue. Moynihan[61] calls attention to deposits of fat beneath the gall-bladder serosa. There are often pericholecystic adhesions to the omentum, duodenum, or colon.

Upon opening the gall-bladder the mucosa may be found to be edematous and swollen, deep red or purple in color. The villi may be thick and congested, or they may have disappeared entirely, leaving a surface covered by flat epithelium or by hyaline fibrous tissue. A characteristic feature of chronic cholecystitis is muscular hypertrophy, which is especially notable when stones are present. The muscle bundles enlarge, and may make up almost the entire thickness of the walls. The bundles may be separated by edema and round cell infiltration, leaving deep crypts and giving a "honey-comb" appearance. The thickening of the wall may be extreme in degree, and the cavity is often much con-

tracted. When the scar tissue involves the cystic duct the resulting obstruction gives rise to great dilatation of the gall-bladder. Owing to the obstruction of the cystic duct by the scar (or by a stone embedded in the mucosa) no bile can enter. Mucous secretion continues from the gall-bladder mucosa and fills the cavity with clear, colorless, watery fluid. The condition is known as hydrops of the gall-bladder. If a pyogenic infection is superimposed, the cavity becomes filled with pus, and empyema of the gall-bladder exists. This same sequence of events may, of course, occur in acute cholecystitis if the factors, infection and obstruction, occur concomitantly and in proper ratio. If infection be marked and obstruction slight, the bladder will be contracted and thick-walled, but if the obstruction is marked and infection slight, the bladder will be dilated and thin-walled.

The "strawberry gall-bladder" was first described in 1909 by Moynihan,[64] and the very appropriate name was given to the condition later (1910) by MacCarty.[65] It is now generally referred to as "cholesterosis." The reddened mucosa is studded with tiny sulphur-yellow specks. The fragile folds of mucosa are completely altered in appearance, being loaded down with dense yellow opaque masses, which may be confied to the summit of the ridges or may be traced down into the depth of the recesses. In severe involvement it may be widespread, but occurs only in patches in the milder cases. This yellow substance can be lifted off in long strings by means of a needle. Chemically it is a lipiod material, an ester of cholesterol. The significance of this lipiod substance is not known, but probably it has some relation to the metabolism of fat and cholesterol. At any rate, it never occurs in the normal gall-bladder, and is frequently associated with calculi.

SIGNS AND SYMPTOMS.

The most classical record of symptoms is given by Moynihan[66] as his "inaugural symptoms." These are as follows: "Flatulence and fulness after meals, amounting sometimes to so great distress that a woman takes off her corsets or loosens them; great epigastric discomfort which may involve the right side also or pierce through to the back; early satiety during a meal, a feeling that when a small meal is taken the stomach is overfull; a sudden unaccountable sensation of intolerable nausea, described very often as 'seasickness,' sometimes accompanied by faintness and often shuddering, often coming on with great regularity; acidity and 'water-brash.' None of these symptoms is severe and none striking. It is in association and persistence rather than in individual character that their importance lies. Now and again in such patients a more acute disturbance of health is noticed; pain and distress in the upper part of the abdomen are associated with local tenderness and with swelling of the liver." Local tenderness over the gall-bladder is a constant feature. When the inflammation has spread to the parts around the gall-bladder there is usually rigidity of the right upper quadrant of the abdomen.

The pain of cholecystitis varies according to whether or not there is a stone attempting to pass along the cystic duct. When there is no stone the pain is generally localized to the region of the gall-bladder. If there is contiguous peritonitis sufficient to cause irritation of the diaphragm, pain may be referred to the right shoulder, by way of the phrenic nerve, and be felt in the region of the distribution of the fourth cervical nerve. The pain may be diffused over the right hypochondriac region, or, if the liver and gall-bladder are much enlarged downward, the pain may extend down almost the iliac fossa.

When there is a stone in the neck of the gall-bladder or in the cystic duct, the pain radiates also to the area beneath the inferior angle of the right scapula. This corresponds with the level of distribution of the eighth dorsal segment from which the gall-bladder derives its main sensory nerve sup-

ply. In uncomplicated cases pain is not felt in the right acrominal or clavicular regions. True qualitative food distress is complained of by one-half of the patients (Judd and Mentzer).[67] Intolerance is generally noted for food fried in fat and other foods rich in neutral fats of a high melting point. Held and Gross[68] call attention to Macleod's observation that these patients best tolerate such fats as cream, butter, and yolks of eggs. Jaundice is not necessarily a part of the picture but may be present in about one-sixth of the cases. A history of jaundice occurring after attacks of acute abdominal pain would suggest the previous passing of a gall-stone.

Cholecystitis is most commonly mistaken for appendicitis or an inflamed duodenal ulcer. The former should be distinguished by consideration of the history, the site of pain, and point of localized tenderness. It must not be forgotten, however, that frequently appendicitis and cholecystitis occur simultaneously. In duodenal ulcer a careful history is of primary importance and may be the chief factor in making a differential diagnosis.

The uncertainty which may be attached to the clinical history is relieved or removed by the Graham-Cole method of cholecystography. The value of this method does not attach itself so much to the diagnosis of gall-stones in which condition the proportion of error is always small, but to the study of the gall-bladder's normal physiology, whereby one may observe the cycle of filling, concentration, and emptying, and arrive at conclusions as to the degree of pathological changes in the gall-bladder. The negative evidence may prove of as much value as the positive.

Of equal importance as the clinical diagnosis of cholecystitis is the establishment of a pathological diagnosis of cholecystitis at operation. With the present tendency to operate upon cases of cholecystitis at a much earlier stage than formerly, the recognition of the early pathological changes has become of increasing importance. Upon opening the abdomen in cases of chronic cholecystitis the surgeon may be surprised by the appearance of the gall-bladder. As has been mentioned, early changes are noted by a loss of the usual lustre and blush color, slight thickening of the walls, a few adhersions, and some enlargement of the lymph nodes along the cystic and common ducts. Judd[70] and Moynihan[61] feel that their experience has shown that, although the gall-bladder may approach normality in appearance, if a definite reliable clinical history has made a verdict against the gall-bladder, it should be removed.

Treatment: That the diseased gall-blad should be subjected to surgery seems to be generally accepted, and, too, the major issues of the operation have been standardized. Concerning the treatment of acute cholecystitis, the former controversy as to the type of operation and as to the time it should be undertaken has now been rather generally settled, at least, in American clinics. Unless there is evidence of a rapidly progressing and severe gall-bladder infection, it is imperative to observe the patient for a few hours or even several days before resorting to surgery. In the acutely inflamed gall-bladder, infection becomes localized more completely and more frequently than it does in an acutely inflamed appendix. In fact, in this respect the gall-bladder resembles the Fallopian tubes. If the process gives evidence of localizing, one should use conservative measures for a time. These are absolute rest in bed, only hot water by mouth, no catharsis, heat to upper right abdomen, gastric lavage, and possibly enemata. The patient should be supported, and dehydration should be prevented by administration of glucose and saline solution by proctoclysis, hypodermoclysis, or intravenous infusion. If the process shows a tendency to localize within twelve hours, it will usually remain localized and the attack will subside. If the process shows no tendency to localize within a few hours, it is much wiser to operate with the intention of merely

draining the gall-bladder. Attempts to expose or clamp the cystic duct will only add trauma to the already present infection, and post-operative stenosis of the ducts may be expected.

The discussion as to the relative merits of cholecystostomy and cholecystectomy has now lost much of its relevance and value. It is now rare for surgeons to drain the gall-bladder. Judd and Mentzer[69] report one cholescystostomy in one thousand gall-bladder operations. W. J. Mayo[71] reports that for the entire Mayo Clinic the percentage of cholecystostomies is a little less than 10 per cent. Moynihan[80] reserves drainage of the gall-bladder for (1) cases in which local difficulties are present, in patients who are unable to stand a long operation and, by virtue of poor general health, it is prudent to curtail the operation; (2) cases in which so severe an infection is present that the patient is gravely ill and the least interference, compatible with the saving of his life, must be undertaken; (3) as one step of operation in extremely jaundiced patients with stones in the common duct.

As in all operations, the skill of the surgeon must be taken into consideration. Of course only an experienced surgeon should assume the responsibility of gall-bladder operations. However, operators of less experience, whose technic is not developed to such a finesse may attempt to perform abdominal operations in general and gall-bladder operations in particular. Cholecystostomy will give a lower mortality than cholecystectomy, especially in the hands of the less experienced. With special reference, therefore, to jaundiced or toxic and debilitated patients it must be emphasized that surgical intervention must be reduced to a minimum. The mortality of cholecystectomy in the presence of common duct stones and jaundice is tremendous. When biliary drainage has been established sufficiently long for the jaundice to disappear, the patient will be a much better operative risk for the next stage—the removal of the obstruction in the common duct.

Cholecystectomy is best done through a high incision in the right upper quadrant, the particular incision which gives the most adequate exposure being the one of choice. There seems to be no question that it is better and safer to remove the gall-bladder by beginning at the cystic duct. There may be an occasional exceptional case better removed by beginning at the fundus. The cystic duct must be carefully ligated and of course there should be no spilling of bile. The surgeon will do well to respect the very irritant action of bile upon the peritoneum. Bile-peritonitis is a dangerous, yet preventable, post-operative complication. It was formerly customary to place an abdominal drain in all cases of cholecystectomy. Richter[72] and Buchbinder,[73] as well as numerous others advocated the closure of the abdomen without drainage. Buchbinder[73] has called attention to the harm from unnecessary drainage. In experimental animals he found that drains predisposed to extensive adhesions, and feels that the peritoneal reaction about a drain is responsible for the post-operative pain and nausea of which these patients complain. The incidence of post-operative hernia is reduced to a minimum by closure of the abdomen without drainage. Judd[80] is convinced that in the clean case in which the cystic duct is accurately tied and the oozing absolutely controlled the omission of the drain is a safer and better procedure. Although some do not favor this method, it has an increasing number of advocates.

NEOPLASMS OF THE GALL-BLADDER.

Tumors of the gall-bladder are very rarely benign, whereas malignant tumors, especially carcinomata are peculiarly liable to involve the gall-bladder.

Carcinoma of the gall-bladder forms five to six percent of all carcinomata (Graham, *et al.*).[74] A remarkable etiological relationship to cholelithiasis is one of the most

interesting features of this disease. Gall-stones were present in 69 percent of Musser's[75] hundred cases, in 95 percent of Couvoisier's[76] 103 cases, and in 90 per-cent of Mayo Clinic's[79] 10,126 cases. Rolleston[77] considers that from 4 per cent to 18 per cent of all cases of cholelithiasis will develop carcinoma. This condition usually occurs after forty years of age and affects women four to five times oftener than men. Mechanical irritation of calculi, the relation and the digestive or irritative action of bile seem to combine in producing the disease. Leitch[78] has been able to produce carcinomata in the gall-bladder of guinea pigs by implanting gall-stones and pebbles in the lumen of the organ.

Adenocarcinoma is the most frequent form. Of thirty specimens of gall-bladder carcinomata examined by Webber[79] twenty-seven were adenocarcinomata; and of forty-eight specimens examined by Burden[80] forty-four were adenocarcinomata. In rare cases an epithelioma may be present, having as its origin a metaplasia of the columnar epithelium to squamous epithelieum.

Symptoms may be due to the pre-existing gall-stones, to the local tumor, or, in late stages, to the extensions and metastases. The liver is invaded early, and jaundice, resulting from involvement of the common duct, is one of the most constant features. The prognosis is very grave, and few cases live more than six months after the appearance of jandice.

Sarcoma of the gall-bladder is known to occur but there are very few authentic cases recorded. Bayer[81] reports two cases, Klingel[82] one case, and Carson and Smith[83] one case; the few other cases reported are not definitely proven.

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Manuscripts should be addressed to the Editor, 1551 Canal St., New Orleans, La.

CARDIAC ASTHMA.

Acute paroxysmal dyspnea, often referred to as nocturnal dyspnea coming on, as it does, most frequently at night, but occasionally occurring after exertion, is a type of respiratory difficulty which is indicative of serious heart disease. Cardiac asthma is also a term applied to this particular cardio-respiratory dysfunction as well as acute suffocative pulmonary edema. The condition is characterized by a panting respiration, inability to lie prone, bubbling rales at times associated with cough, and frothy sputum. One of the outstanding features of cardiac asthma is the prompt relief attained by a full-sized dose of morphine given hypodermically.

Various hypotheses have been advanced to explain the genesis of this particular and peculiar type of dyspnea. It has been ascribed to a possible aortic reflex, to increased circulatory rate, to left ventricle failure, to left ventricle failure with a shift in the body fluids from transudates or edema. Other theories have also been suggested. The general concensus of opinion seems to be that it is due to functional insufficiency of the left ventricle, or in the words of the older clinicians, left heart failure. Palmer and White* have recently studied a group of 250 patients with cardiac asthma. They point out that the occurrence of paroxysmal dyspnea is of extremely grave prognostic significance. They suggest the left ventricle failure causes, with increased blood flow, a stasis of blood in the pulmonary circulation, so that the left ventricle is unable to take care of the blood sent on by the right ventricle. Blood accumulates in the pulmonary circuit. By reflex stimulation the asthmatic breathing is induced. The patient awakened by the difficult breathing, assumes an upright position and thus relieves the strain of the left ventricle. The morphine induces a reduction in the irritability of the respiratory center as well as ameliorating the nervous factor of the process, and thus in part aids the circulation by relieving nervous strain.

THE PRESENT STATUS OF CHIROPRACTIC IN LOUISIANA.

Walter Fife entered the Shreveport jail the first of February to serve a sentence of 60 days, as well as paying a fine of $100.00. His brother, Joe Fife, is yet to be tried on the same charge that sent Walter Fife to jail, the illegal practicing of medicine. June and Hanning, who were conducting the so-called health institution at Shreveport for the Fife Brothers, were also fined $50.00 and sent to jail for 10

*Palmer, Robt. S. and White, Paul D.: The clinical significance of cardiac asthma. J. A. M. A., 90:431-434, 1929.

days. These two men also were convicted of the illegal practicing of medicine.

The Louisiana State Board of Medical Examiners deserve praise for their consistent efforts to keep out of the State illegal practitioners of medicine, and particularly are to be congratulated upon the conviction of these chiropractors who have long attempted to flaunt the authority of the State, through the Legislature which has the ultimate authority as to who should or should not engage in the care of the sick. It hardly needs to be emphasized that the profession of medicine is one requiring long intensive training, and that diagnosis is the basis on which all treatment depends. Without such training, the learning of how to make a diagnosis, no treatment can be effectual. For a man to attempt to gather in a few weeks that which it has taken the practitioner of medicine years to learn is an utter absurdity. It seems ridiculous that the citizenry of a State has to be protected from the quack and charlatan by law, as any thinking man should appreciate the fact that it is impossible properly to treat diseases without knowing anything about the basic sciences of anatomy, chemistry, physiology, bacteriology and pathology, which knowledge is necessary to appreciate the evolution and the manifestations of bodily disorders. The chiropractor, as do other cultists, attempts to treat diseases without even a speaking acquaintance with the fundamentals of disease. The result has been, and ever will be, misery, distress, tribulation and calamity for the poor sufferer with early carcinoma or minimal tuberculosis or any one of a host of curable diseases, who they try to cure by a farcical and impossible spine adjustment.

THE RISE AND FALL OF AN EPIDEMIC.

The recent epidemic of influenza started on the western coast and moved eastward. In the figures compiled by the Department of Commerce it is possible to trace the epidemic across the continent. Los Angeles, during the week of December 15, had 85 patients die with influenza, while New Orleans had 12, and New York had 16. Two weeks later the death rate in Los Angeles from influenza was 32; New Orleans had gone up to 52; New York to 46. One week later the peak of the epidemic had been reached in New Orleans. In the week of January the fifth, 84 people died from influenza, whereas in Los Angeles there were only 25 deaths, and in New York there were 55. By January the twenty-sixth Los Angeles reported no deaths from influenza, New Orleans 15, and New York 167. The same relative figures as applied to influenza hold good for pneumonia. The week that the influenza deaths obtained its greatest height in New Orleans, there were 62 deaths from pneumonia, whereas January 26 only 17 deaths had been reported.

Apparently it took about 4 weeks for the epidemic to obtain its height in New Orleans, moving on from Los Angeles. From New Orleans to New York required about 3 weeks of travel before the epidemic obtained its greatest height. The spread of influenza in the years 1928 and 1929 was not by any means as rapid as it was in the year of the great pandemic when the disease seemed to spring up almost simultaneously in different sections of the country.

WORTHY PENSION APPLICATIONS.

There is pending before the 70th Congress two pension bills which deserve the support of the medical profession. These two bills have been introduced in the House by one of its members and in the Senate by Senator Ransdell of Louisiana.

The first pension bill presented in the interest of Mrs. Goldberger, is particularly important, as Dr. Goldberger during his life, was one of the outstanding Public Health officials and scientists of this country. It was he who gave unequivocal proof that pellagra is a deficiency disease.

During the course of the investigation, both he and his widow subjected themselves to experiments to prove this thesis. By his demonstration of the gensis of pellagra Goldberger has done much for the South, making possible the control of a disease of immense economic and social importance to this section of the country. During the years of his active investigative life Goldberger contracted typhoid fever, dengue fever, and yellow fever, while studying these diseases.

The second of the pension bills has to do with the granting of a small monthly sum to Mrs. Mary von Ezdorf. Dr. von Ezdorf was a member of the United States Public Health Service and for many years was in charge of the Marine Hospital at Mobile and later at New Orleans. Later when he was director of malaria investigation in Mississippi and Louisiana he had his headquarters in New Orleans.

Pensions have been granted in the past by Congress to the widows of medical men who have died in the service of their country, for example in the case of Carroll of yellow fever fame, Assistant Surgeon W. W. Miller of the United States Public Health Service, and Past Assistant Surgeon T. B. McClintic, all of whom died during the active years of life while employed by the Government.

Members of the Louisiana State Medical Society and Mississippi State Medical Association are urged to write to their Representatives and Senators stating their approval of these pensions. Members of the Mississippi State Medical Association are in a particularly favorable position to influence action on these bills, as Senator Pat Harrison is a member of the Senate Finance Committee, before which committee these bills will be presented.

LEPROSY IN UNITED STATES. — Hopkins and Denney have made a statistical study of 718 lepers hospitalized over a period of thirty-four years in the Louisiana Leper Home—later the National Leprosarium. Two hundred and fifteen were foreign born and 503 were natives of the United States. The present population of the hospital is 287. Mexico, China, Italy, Greece and the Philippine Islands have furnished one-half of the total foreign born. Most of the lepers came from Louisiana, California, New York, Texas and Florida; 418 came from Louisiana. The incidence of leprosy among the white population of Louisiana is computed as twice that in the negro population. Of the total cases, 11.0 per cent were of the nerve type, 39.1 per cent of the skin type, and 49.9 per cent of the mixed type.

THE PROMOTION OF THE COMMON WELFARE; THE AIM OF MODERN MEDICINE.— The scientific structure of medicine was never on surer ground nor more able nor better prepared to combat and to cure disease than it is today; but its economics were never in such a dubious state. Society may be thought of as being made up of three great estates: the poor, the middle class, and the wealthy. The population of each is never fixed, but constantly changing, losing and recruiting as time goes on. The second estate in which reside the moral spiritual, political and social strength of society will always constitute the great mass of humanity and present not only the greatest number but the greatest complexity of problems. The health problems of this class are just as truly economic as are the problems now so acutely confronting and affecting the industry of agriculture, and as governmental agencies are now severely aroused to the necessity of finding relief for the latter, so must the leaders and economists of the medical profession, in coordination with kindred authoritative welfare agencies, undertake to find a solution of the health problems of the former.

HOSPITAL STAFF TRANSACTIONS

CHARITY HOSPITAL MEDICAL STAFF

MEETING JANUARY 15, 1929.

Immediately following the call to order by Dr. Musser the meeting was addressed by Dr. George Bel, who asked the Staff's co-operation with regard to the limitation of hospital abuse, urging everyone to report any such cases coming to their attention.

Dr. Musser then briefly and rapidly spoke of several interesting points in autopsy records. One case was that of acute lymphatic leukemia in a child 11 months old, a Mongolian idiot. Another, a case of acute poliomyelitis with paralysis without an increase in the spinal fluid cell count. There were signs of consolidation in the chest, and the autopsy showed a collapse of the lung. The third case was one of tuberculous peritonitis with rupture of a tuberculous ulcer of the intestine.

Dr. Musser's service presented a case of gonorrheal vaginitis in a child of 12 years of age with an unusual complication. The child was seized with acute abdominal pains while in the ward and a diagnosis of acute appendicitis was made. On opening the abdomen it was found that she had bilateral pelvic inflammatory disease. According to Dr. Musser this is certainly a rare complication of gonorrheal vaginitis in young girls.

The second case, a 12-year-old girl, had had cerebro-spinal meningitis, with headache, chills, fever and stiffness of the neck. Eight spinal drainages were performed. Some work was done on this case to determine the results of the ingestion of sugar on the sugar content of the blood and spinal fluid. These results were presented briefly.

Another case of cerebro-spinal meningitis in a child was presented. The cell count in this case had been over 30,000, and she had received anti-meningococcic serum.

The fourth case as a young man who had been taking the proprietary preparation, Bromidia, for 5 years in sufficient doses to take 6 grams (90 grains) of chloral a day. This was done to control nervousness and an alcoholic tremor.

Dr. Herrmann presented a young white male who had been admitted for an abdominal complaint to the surgical service. Following a careful examination it was found that he had a dextrocardia, and on further examination that his appendix was on the left side, the seat of his complaint. A left appendectomy was therefore performed. Following his operation he had been very carefully studied. It was found he had a complete situs inversus. In addition there was a systolic thrill and murmur at the second right interspace, with a visible pulsation here. Dr. Hermann's opinion was that there was a patent ductus arteriosus and a defective interventricular septum.

The second case was also one of dextrocardia, but in contradistinction to the preceding case was not of the congenital type, but of the secondary type, therefore, a pseudo-dextrocardia. The electrocardiogram therefore did not show a reversal of the waves as in the first case, but rather a fixation of the electrical axis in all three positions. The condition was secondary to pulmonary tuberculosis.

Dr. Wintrobe showed a case of hemophilia in a man 53 years of age. There had been a history of cough, fever, and pain with swelling in the left side. There was a bluish yellow discoloration in the left side of the abdomen and a palpable tumor mass. The physical examination was otherwise negative. The patient stated he knew he was a bleeder. He has four brothers, three of whom are bleeders. Both of his sisters are not bleeders. Two uncles are also bleeders.

His blood picture showed a slight anemia; 426,000 platelets; a bleeding time of 2 minutes and a coagulation time of 14 to 15 minutes. Testing the coagulation time with blood drawn from the vein, it was 50 minutes.

WILLARD R. WIRTH, M. D.

CHARITY HOSPITAL SURGICAL STAFF.

The January meeting of the section brought out several interesting subjects. The statistical analysis of the deaths occurring in the hospital during the month of November showed the following mortality: general surgery, 5.5 per cent; gynecology, 1.6 per cent; obstetrics, 3.9 per cent; genito-urinary diseases, 5.5 per cent, and eye, ear, nose and throat 0.4 per cent. During the same month there were 853 operations performed. It is interesting to note that during this time, also, there were 2,370 accidents treated in the hospitals accident room.

Four cases showing various points of interest were presented and discussed very liberally. The first was that of a white male who had been admitted to the hospital in a moribund condition, and presenting a severe infection of the right side of his face. He died a short time after his admission. It was pointed out, by Dr. Ochsner, that infections about the face, between the hair lines, are very dangerous; that the patients should be hospitalized and treated with ultraconservatism.

The second case was that of a colored female who died following pan-hysterectomy. The cause of death was general peritonitis. Organisms in the patient's uterus and cervix are thought to have been the focus for the peritoneal infection, and it was pointed out that the organism was probably the streptococcus. A case of acute suppurative and gangrenous appendicitis with peritonitis was then discussed. The usual interesting data were reviewed. This patient died three days after admission. The last death discussed was that of a white male, aged 47, in whom there were found an enlarged median lobe of the prostate, and a diverticulum of the bladder. The blood chemistry on the date of death showed a very great increase in the nitrogenous products.

Followng this Dr. Smith, of the Pathological Department, presented two interesting specimens. One was a glandular type of adamantinoma of the upper jaw, left side; and the other was a cystic adamantinoma involving the lower jaw.

FRANK L. LORIA, M. D.

MERCY HOSPITAL STAFF TRANSACTIONS.

At the January monthly meeting of the hospital staff the annual election of officers resulted in a unanimous re-election of all incumbents to serve for one more year.

The discussion of Institutional deaths was of exceptional interest, due to the remarkable number of extraordinary cases with unusual complications.

The clinical services are being investigated by a committee, headed by Dr. W. Otis, with the object of revision and improvement. This investigation is under the control of the general staff.

Dr. Ficklin presented two patients coming under his treatment.

Case one: A woman having a clinical picture of abscess of the liver, including hyperpyrexia, leukocytosis and acute onset of pain. She had had a questionable tumefaction removed along with an amputation of the breast a good number of years previously. At operation it was found that she was suffering from a multiple carcinomatosis of the liver.

Case two: A man suffering from an abscess of the kidney apparently hematogenous in character and having as its place of origin a secondary infection of the foot following trauma.

The order of business at the February meeting was revised to allow of the presentation of the much discussed films of the petrolagar people. Mr. F. L. Dickinson, their special representative, promised, at the request of Dr. E. Fenner, that at no time in the future would this body, or hospital's name, be used in connection with this exhibit, for advertisement purposes.

A case of eclampsia was discussed at the request of the committee on deaths.

Dr. H. D. Ogden read a paper on "Pyelitis of Pregnancy," taking into account the mechanical factors entering into the infection, the prophylaxis, treatment and complications. A general discussion followed, which proved of interest because of the many therapeutic agents which are being used with little or no appreciable effect.

DR. MAURICE CAMPAGNA, Secy.

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL STAFF MEETING,

FEBRUARY 11, 1929.

Abstract—Lymphoblastoma (Hodgkin's Disease) in child—Deep Roentgen-ray therapy.—Dr. A. Street.

Patient—White, male, aged 9 years, admitted to hospital January 5, 1929.

Complaint—Stiff neck, dyspnea, dysphagia, headache, fever, anorexia, nausea, vomiting, loss of weight, and swelling behind and below angle of left lower jaw. Onset seven months ago, following a slight injury to neck, when motion of the head became limited. Shortly afterward an enlargement of the left upper cervical region was noted and at the same time a rhinologist noted a mass in the pharynx and recommended roentgen-ray therapy, which was given. This was followed by temporary improvement, but symptoms gradually returned, and when seen the patient could scarcely breathe or swallow on account of the mass in the pharynx and was rapidly becoming emaciated. Temperature 99° to 101° F., beginning a few weeks ago. Two diseased teeth were recently removed.

The previous history and family history were irrelevant.

Physicial Examination—Patient was very thin, pale, breathing was labored, and there was a marked respiratory wheeze apparently from pharyngeal obstruction. The head was inclined to the right and head movements were limited.

There was enlargement of the region below and behind the angle of the left jaw. Discrete, slightly tender nodules were felt in this region, the largest being no more than ½ inch in diameter. There were no other palpable enlargement of lymphatic glands. The left half of the pharynx was occupied by a solid mass bulging from the lateral and posterior pharyngeal walls, and covered with mucosa. Physical examination was not

otherwise remarkable and a roentgenogram of the chest showed no enlarged mediastinal glands. The hemoglobin was 62 per cent; erythrocytes, 4,488,000; color index, 0.62; leukocytes, 39,500; differential leucocyte count, small lymphocytes, 8 per cent; large lymphocytes, 4 per cent; neutrophils, immature forms 29 per cent; neutrophils, mature forms 54 per cent; eosinophils, 5 per cent; no malaria found. Index of resistance +17.

One of the cervical nodules was easily removed for diagnosis, and Dr. Lippincott reported a lymphoblastoma of the malignant or Hodgins type.

Treatment—Deep roentgen-ray therapy was given by exposure through the right cervical region, initial exposure of thirty minutes, 0.5 mm. copper and 1 mm. aluminum filtration, 4 milliamperes, 200 K. V.

Subsequent—The patient returned two weeks after the treatment. The masses in the pharynx and in the left cervical region had almost disappeared. Breathing and swallowing were normal. The patient was eating well and gaining in weight and strength. The biopsy wound was cleanly healed. Blood examination showed hemoglobin, 72 per cent; leukocytes, 35,500; differential leucocyte count: small lymphocytes, 2 per cent; neutrophils (immature forms), 96 per cent; neutrophils mature forms 2 per cent. No malaria found. Twelve hundred milligram hours of radium treatment were applied into left cervical region.

Report from patient on February 10, 1929, was that improvement continued. Following the case report, the pathology, clinical course and treatment of the condition were discussed.

Abstract—Post Influenzal Disturbances of the Heart.—Dr. L. J. Clark.

The actual incidence of cardiac mischief resulting from influenza has been determined by Hyman to be from four to six per cent during the pandemic of 1918-19 and 1925-26.

The reaction of the heart to the influenza toxin is probably more marked than to the toxins of other acute infectious diseases. The development of more refined methods, including the electrocardiograph, is responsible for the correct interpretation of these conditions.

Three groups of affections have been determined by Hyman. These are: (1) Those with irregularities of rhythm; (2) those with endocardial and valvular changes; (3) those with manifest signs of decompensation. The first group is by far the most frequent type, perversion of the pace-maker mechanism and ectopic beats being the most common, but giving the best outlook. The picture is very easily confused with certain forms of heart block which carries with it a much more serious prognosis, and all such cases should have electrocardiographic tracings made. With a proper recognition of the conditions, much can be done in handling these cases, and a great many sudden deaths prevented. The second group is less frequent, but is apparently of considerable importance because of the similarity to the effect of acute rheumatic fever. The third group is more serious and presents a grave outlook, usually resulting in cardio-vascular collapse, a distressing picture.

The severity of the original influenza attack shows little or no relation to the extent of the cardiac damage.

Absolute and prolonged rest and close observation are the main methods of combating these conditions.

Abstract—Tuberculosis of the Thoracic Wall with Extensive Abscess of Right Side and Lumbar Region, Simulating Pott's Disease.—Dr. J. A. K. Birchett, Jr.

Patient—Colored, female, aged 13 years; school girl.

Complaint—Inability to move on account of swelling in right leg, which resembles a cold abscess; pain in mid-dorsal region and fluctuant tumor in thigh.

Past History—Last August patient fell down stairs. Felt sharp pain in chest, which soon stopped. A week later pain was so severe that it made her sick. Sharp pain in right side of chest. Family physician told her she had pleurisy, and mustard plaster was applied until pain stopped. This required several applications. For two or three weeks was then out and feeling well. Pain then began again and a swelling, soft in the center, developed. This was incised and pus was evacuated. Patient had fever and there was a slight loss of weight during this time; no cough. Weight at the time of the fall was 135 pounds; had lost ten pounds between fall and opening of abscess. A sinus developed at the sight of abscess and another doctor was called. Roentgenograms were taken and a diagnosis of osteomyelitis of the ribs made. These pictures were taken Christmas day. Operation was advised.

After Christmas, thigh began to swell and was very painful and several times the size of the left thigh. There was high fever and pain was very severe in the leg.

Patient was first seen by me at this time. Had chills and fever last summer; no other illnesses. Began menstruating six months ago.

Family history negative for tuberculosis and cancer.

Physical Examination—Young negro female, very emaciated, and complaining of pain in the right thigh and hip. Temperature 102° F.; weight, 90 pounds; pulse, 130; blood pressure, 110/80; respiration, 20. There was a raw surface on the anterior chest over the fifth, sixth and seventh ribs, with evidence of rib destruction. Roentograms show normal lung tissue; no markedly enlarged glands in the mediastinum. Abdomen scaphoid, very thin type, no areas of tenderness, except in the right lower quadrant and in the region of the anterior superior spine of the ilium. There was a fluctuant tumor with bulging extending up the muscle planes to the lower border of the ribs on the right side. Pelvic examination not possible. Left leg was very emaciated; right thigh much larger than left, and there was a fluctuant tumor at the inner surface suggesting a cold abscess or psoas abscess. Skin very scaly and dry. Physical examination was otherwise negative. Roentogram showed no evidence of bone destruction in the spine.

Blood Examination—Hemoglobin, 62 per cent; leukocytes, 23,000; differential leukocyte count: small lymphocytes, 19 per cent; large mononuclears, 2 per cent; neutrophils (immature forms); 5 per cent; no malaria found. Wassermann and Kahn test negative. Urine showed slight trace of albumin and numerous pus cells.

Operation—The abscess in the thigh and right lumbar region was drained by a stab wound in the region of the anterior superior spine of the ilium. At least two gallons of thick purulent material were evacuated and tubes placed for washing the deep cavities opened with Dakin's solution. The pus was from the lesion of the chest wall, having burrowed down and entered the muscle planes of the external and internal oblique muscles, then burrowing over or under the inguinal ligament into the thigh. The opening which was supposed to be a tract to the raw surface of the thorax was injected with Becks paste, but the roentgenogram did not show a tract. A piece of tissue was taken from the edge of the granulating surface for examination.

Examination of pus showed staphylococcus aureus; no tubercle bacilli found. Microscopic examination of tissue from chest wall showed tuberculosis.

One week after the first operation, a second was done under ether anesthesia and the diseased fifth, sixth and seventh ribs from the sternal articulations to the anterior axillary line and well back into the sound ribs removed. A large extrapleural abscess was entered after the ribs were removed and a quantity of purulent, caseous material was evacuated. The cavity was drained and washed daily.

Results—The general condition improved and pain was relieved almost immediately following the first operation. Patient is doing well, does not have fever, and is gaining in weight and strength.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

During the month of February besides the regular meeting of the Board of Directors the Society held one scientific meeting.

At the scientific meeting the program was as follows:

"Management of Birth Injuries Including Late Anatomical Repairs of the Perineum." Lantern slides. By Dr. Thos. B. Sellers. Discussed by Drs. Wilbur C. Smith and E. L. King.

"Cartilaginous and Osteo-Cartilaginous Rib Grafts in the Correction of certain Disfigurating Deformities of the Nose." By Dr. Waldemar R. Metz. Discussed by Drs. R. C. Lynch and A. I. Weil.

Motion pictures of the Movements of the Alimentary Tract. Given by the courtesy of the Petrolagar Company.

During this past month Dr. I. M. Gage, Chairman of the Scientific Essays Committee sent out a circular letter to the membership with a schedule of the meetings for the year. The members were asked to fill in the dates on which they could present papers in order that we may have our programs filled. To date very few replies have been received, and the Chairman is very anxious to have the membership cooperate in this respect.

The following is the schedule of meetings for 1929:

March 11—Scientific Meeting.

March 25—Joint Clinical meeting with Charity Hospital Staff.

April 8—First Quarterly Executive Meeting.

April 22—Scientific Meeting.

May 13—Scientific Meeting.

May 27—Scientific Meeting.

June 10—Joint Clinical meeting with Charity Hospital Staff.

June 24—Scientific Meeting.

July 8—Second Quarterly Executive Meeting.
Society in Vacation—July, August, September.
October 14—Third Quarterly Executive Meeting.
October 28—Scientific Meeting.
November 11—Scientific Meeting.
November 25—Scientific Meeting.
December 9—Joint Meeting with the U. S. Marine Hospital Staff.

The following is a list of the committees for 1929, appointed by our President, Dr. E. D. Fenner:

Judiciary Committee—Dr. Frank J. Chalaron, chairman; Drs. Henry Bayon, Muir Bradburn, Foster M. Johns and J. P. O'Kelley.

Scientific Essays Committee—Dr. I. M. Gage, chairman; Dr. Chaille Jamison (Medicine), Dr. Jerome E. Landry (Surgery), Dr. Ernest E. Allgeyer (Eye), Dr. P. A. McIlhenny (Orthopedics).

Auditing Committee—Dr. C. A. M. Dorrestein, chairman; Drs. W. O'D. Jones, W. A. Knolle, F. A. Overbay and Sidney K. Simon.

Condolence Committee—Dr. Solon G. Wilson, chairman; Drs. John Smyth, E. A. Socola, N. F. Thiberge and J. C. Menendez.

State Medicine and Legislation Committee—Dr. Paul J. Gelpi, chairman; Drs. W. F. Heneerson, Emmett L. Irwin, Urban Maes, T. B. Sellers.

Librarian's Report Committee—Dr. I. I. Lemann,, chairman; Drs. Maud Loeber, Edward McCormac, Jules B. Rateau and J. D. Rives.

President's Report Committee—Dr. Chaille Jamison, chairman; Drs. Homer Dupuy, Jules Dupuy, John F. Dicks, H. B. Gessner, C. Jeff Miller and A. I. Weil.

Secretary's Report Committee—Dr. Louis Levy, chairman; Drs. G. C. Anderson, O. C. Cassegrain, E. McC. Connely, M. J. Gelpi, Roy B. Harrison, Adolph Henriques, J. C. Menendez and J. J. Wymer.

Treasurer's Report Committee—Dr. H. W. Kostmayer, chairman; Drs. S. M. Blackshear, A. F. Hebert, E. H. Lawson, W. E. Levy, Leopold Mitchell and Arthur Vidrine.

Library Committee—Dr. D. N. Silverman, chairman; Drs. Lucien A. Fortier, H. L. Kearney, John A. Lanford, and Randolph Lyons.

Hospital Abuse Committee—Dr. A. E. Fossier, chairman; Drs. M. Earle Brown, Jerome E. Landry, E. S. Hatch and Alton Ochsner.

Publicity Committee—Dr. J. H. Musser, chairman; Drs. Henry Daspit and Shirley C. Lyons.

Periodic Health Examinations Committee—Dr. Jerome E. Landry, chairman; Drs. H. E. Miller, Martin O. Miller, J. T. Nix, J. T. O'Ferrall, W. J. Otis and W. H. Seemann.

Dr. Keith Kahn was elected to Active Membership in the Society, Dr. David C. Roberts and Dr. Chas. McD. Smith were elected to Interne Membership and Dr. Ernest C. Faust was elected to Associate Membership.

It is with regret that we report the death of two of our active members, Dr. Adolph O. Hoefeld who died February 5 and Dr. James E. Pollock who died February 18.

REPORT OF TREASURER.

Actual Book Balance 12/31/28	$1,239.94
Receipts during December	3,328.27
	$4,568.21
Expenditures	$1,743.99
Actual Book Balance	$2,824.22

REPORT OF LIBRARIAN.

The reference work has been unusually heavy during the month of January. Six bibliographies have been prepared on subjects as follows:

Bronchography—Technique (1923-28).
Foreign Bodies in the Intestines (1923-28).
Tumors of the Trachea (1924-28).
Fibroma, Sarcoma and Myoma of the Stomach (1923-28).
Gastric Ulcer in Children.
Percussion (1919-28).

Thirty-one books have been added to the library. Of these 19 were received by subscription, 4 by purchase, two by gift and six from the New Orleans Medical and Surgical Journal. Gifts of journals have been received from the following persons and agencies:

Drs. C. Jeff Miller, Maurice J. Gelpi, H. Dickson Bruns, J. L. Locascio, J. H. Musser, El Paso County Medical Society, Jackson County Medical Society.

A list of new accessions of recent date is appended.

Two chest of current journals (some 90 volumes) have been prepared and sent to the binders, in order that they may be back on the shelves for reference use at the earliest possible date.

NEW BOOKS.

Crowe—Bacteriology and Surgery of Chronic Arthritis and Rheumatism. 1927.
Long—History of Pathology. 1928.
Bram—Goiter Prevention and Thyroid Protection. 1928.
Wheeler—Laboratory Manual of the Massachusetts General Hospital. 1928.
Cramer—Fever, Heat Regulation and Thyroid Adrenal Apparatus. 1928.
Park—Public Health and Hygiene. 1928.

H. THEODORE SIMON, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

TO THE MEMBERSHIP OF THE LOUISIANA STATE MEDICAL SOCIETY.

It affords us pleasure to report progress in the work of all the Committees for the Annual Convention. The program for the gala night, the Semicentennial Celebration night, is about completed, and among the prominent speakers of the evening will be Dr. W. C. Rucker, Surgeon of the United States Public Health Service and our Dr. Rudolph Matas, both of whom are national figures.

The Golf Committee is making elaborate preparations for the golf matches, and will offer attractive prizes.

There will be a banquet at the Roosevelt Tip Top Inn the evening of Wednesday, April 10. This will also be one of the special features of our meeting, and we are promised a very large attendance. The Committee wishes to assure the membership that every effort will be made to make this a "treat" as in the past.

The scientific exhibits are in the hands of Dr. Foster M. Johns, and will no doubt prove one of the main drawing cards.

The Committee would like to be advised at as early a date as possible as to what papers will necessitate the use of projectors.

The Committee is expecting a large registration, and cherishes the hope that this meeting will be the banner one from a scientific, social and artistic standpoint.

PAUL J. GELPI, M. D.,
Chairman, Committee on Arrangements.

The annual meeting of the Louisiana State Radiological Society was held January 26, 1929 in the Roentgen-Ray Department of the Charity Hospital.

Many interesting films were demonstrated and case reports were made by Drs. Rutledge, Henderson, Granger and Fortier.

The meeting was presided over by Dr. Rutledge of Shreveport. Dr. St. Martin was vice-president and Dr. Fortier secretary. The new officers elected were Dr. T. I. St. Martin, President; Dr. E. C. Samuels, Vice President; and Dr. L. A. Fortier, Secretary. The next meeting place chosen was New Orleans.

PARISH MEDICAL SOCIETY OFFICERS FOR 1929.

The following Parish Medical Societies have elected officers for 1929 as follows:

Bienville Parish:

President—Dr. R. C. Ferguson, Arcadia.
Vice-President—Dr. O. O. Hammer, Arcadia.
Secretary-Treasurer—Dr. J. N. Blume, Arcadia.
Delegate—Dr. O. L. Wise, Bienville.

Jackson-Lincoln Bi-Parish:

President—Dr. W. S. Rutledge, Ruston.
Secretary—Dr. Marvin T. Green, Ruston.

Lafayette Parish:

President—Dr. A. J. Comeaux, Youngsville.
Vice-President—Dr. L. A. Prejean, Scott.
Secretary-Treasurer—Dr. W. J. Yongue, Lafayette.
Delegate—Dr. R. D. Voorhies, Lafayette.
Alternate—Dr. M. E. Saucier, Lafayette.

Natchitoches Parish:

President—Dr. J. C. Parrott, Montrose.
Vice-President—Dr. J. T. Keator, Bermuda.
Secretary-Treasurer—Dr. W. W. Knipmeyer, Natchitoches.
Delegate—Dr. J. B. Pratt, Natchitoches.
Alternate—Dr. R. S. Roy, Natchitoches.

Franklin Parish:

President—Dr. J. D. Rogers, Winnsboro.
Vice-President—Dr. V. J. Funderburk, Winnsboro.
Secretary-Treasurer—Dr. A. J. Reynolds, Winnsboro.
Delegate—Dr. W. A. Mecom, Wisner.
Alternate—Dr. J. D. Rogers, Winnsboro.

Calcasieu Parish:

President—Dr. O. W. Moss, Lake Charles.
Secretary-Treasurer—Dr. L. Z. Kushner, Lake Charles.

Webster Parish:

President—Dr. R. E. Smith, Minden.
Vice-President—Dr. B. A. Norman, Minden.
Secretary-Treasurer—Dr. C. M. Baker, Minden.
Delegate—Dr. R. E. Smith, Minden.
Alternate—Dr. E. B. Godfrey, Minden.

MEETING OF THE ST. TAMMANY PARISH MEDICAL SOCIETY.

The Society met at Slidell Friday night, February 8, in the Community Room with the following members present: Drs. J. K. Griffith, F. R. Singleton, J. F. Polk and L. Roland Young. Dr. Lawrence Young attended as a guest. As there was not a quorum due to inclement weather and urgent calls the regular formality was dispensed with.

Dr. M. F. Wilson of the Department of Experimental Medicine of Parke Davis and Company rendered a brief talk on bacterins, immunogens, toxins, anti-toxins and serums after which two reels of movies were shown depicting the stages and processes in the manufacture of them. The next meeting will be held on the second Friday night in March at Covington.

L. ROLAND YOUNG, M. D.,
Acting Secretary.

At the recent Annual meeting of the Hotel Dieu Staff, the following officers, comprising the Executive Committee were selected to serve during the coming year:

President—Dr. J. T. Nix.

Vice-President—Dr. J. E. Landry.

Secretary-Treasurer—Dr. Lucien A. LeDoux.

Additional Members of the Committee—Drs. H. T. Simon, D. Murphy, Paul Gelpi.

LUCIEN A. LEDOUX, M. D.,
Secretary.

John Cecil Chapman, Colfax, Louisiana, Nashville Medical College, Nashville, Tennessee, who served two terms as Coroner of Grant Parish, and who served during the World War, at the age of 50 years, died January 22, 1929 in the Baptist Hospital, Alexandria, Louisiana, of pneumonia complicating influenza.

At a meeting of the Lafayette Parish Medical Society held December 21, 1928, at the Elk's Home at Lafayette, the following officers were elected:

President—Dr. A. J. Comeaux, Youngsville.

Vice-President—Dr. L. A. Prejean, Scott.

Secretary-Treasurer—W. J. Yongue, Lafayette.

Delegate to State Medical Convention—Dr. R. D. Voorhies, Lafayette.

Alternate Delegate—Dr. M. E. Saucier, Lafayette.

The following members were present:

Drs. M. E. Saucier, L. B. Long, M. R. Cushman, W. J. Yongue, R. D. Voorhies, A. R. Trahan, A. U. Arreteig, R. C. Johnson, L. O. Clark, A. J. Comeaux, C. E. Hamilton, L. A. Prejean, and Eric Guilbeau.

W. J. YONGUE, M. D.,
Secretary-Treasurer.

AMERICAN COLLEGE OF PHYSICIANS, THIRTEENTH ANNUAL CLINICAL SESSION.

The American College of Physicians will hold its Thirteenth Annual Clinical Session in Boston, April 8-12. Dr. Charles F. Martin, Dean of the Faculty of Medicine, GcGill University, is President of the College this year, and Dr. John H. Musser, Professor of Medicine at Tulane University Medical School is President-Elect and will be induced to the Presidency toward the end of the Boston meeting. Dr. James H. Means, Jackson Professor of Clinical Medicine at Harvard Medical School and Chief of the Medical Service at the Massachusetts General Hospital is General Chairman of all Boston Committees having charge of arrangements for the Clinical Session of the College in April.

The program provides hospital visits, clinics, demonstrations and ward-walks during the forenoons at fifteen different Boston hospitals, and for general scientific sessions each afternoon and evening in the Assembly Room of the Hotel Statler, which will be headquarters. Eminent authorities in their special lines will present the results of their work before an audience competent to appreciate the value of the contributions.

The annual Banquet of the College will be held Thursday evening, April 11, when Dr. George E. Vincent, President of the Rockefelleer Foundation, will deliver the chief address. The Convocation, for the conferring of Fellowships, will take place Friday evening, April 12. Dr. Charles F. Martin, of Montreal, will deliver the Presidental Address.

Programs and details may be secured from the Executive Secretary, E. R. Loveland, 133-135 S. 36th Street, Philadelphia, Pa., or Dr. Randolph Lyons of New Orleans.

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER.

The annual meeting of the American Association for the Study of Goiter will be held this year at Dayton, Ohio, March 25-27. The primary object of this association is to bring together each

year men who are especially interested in the study of goiter and its associated problems. Members of state and provincial medical societies are eligible and cordially invited to participate as attending members.

The first day of the Dayton meeting will be given over to diagnostic clinics in the morning and several short papers during the afternoon, chiefly concerned with recent experimental work. On the second day, operative clinics will be held at the Miami Valley Hospital, St. Elizabeth's Hospital and at the Soldiers' Home Hospital. The afternoon of the second day and the morning and afternoon of the third day will be given over to the presentation and discussion of scientific papers.

AMERICAN PROCTOLOGIC SOCIETY.

The American Proctologic Society will hold its annual meeting in Detroit, May 13, 14, and 15. The Hotel Statler has been selected as headquarters for the scientific program, and the scientific and commercial exhibits.

Any Doctor of Medicine who graduated from a recognized medical school and who is a member in good standing of his county and state societies, and the A. M. A., and who is especially interested in proctology shall be eligible for election as an Associate Member of the American Proctologic Society.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held at New Orleans, Louisiana, April 29, 1929.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

H. S. CUMMING,
Surgeon General.

UNITED STATES CIVIL SERVICE EXAMINATIONS.

The United States Civil Service Commission announces the following open competitive examinations:

ASSOCIATE MEDICAL OFFICER.

ASSISTANT MEDICAL OFFICER.

Applications for associate and assistant medical officers must be on file with the Civil Service Commission at Washington, D. C., not later than June 29.

The examinations are to fill vacancies in hospitals of the Public Health Service, the Indian Service, and in other establishments of the Federal classified service throughout the United States.

PHYSICIAN, $3,800 A YEAR.

ASSOCIATE PHYSICAN, $3,200 A YEAR.

Applications for the above-named positions must be on file with the Civil Service Commission at Washington, D. C., not later than June 29.

The examinations are to fill vacancies in hospitals of the Veterans' Bureau for duty throughout the United States.

PHYSIOTHERAPY ASSISTANT.

Applications for physiotherapy assistant must be on file with the Civil Service Commission at Washington, D. C., not later than May 7.

The examination is to fill vacancies in hospitals of the Veterans' Bureau and the Public Health Service.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

CORRESPONDENCE.

7124 Coles Avenue, Chicago,
January 31, 1929.

To The Editor:

The Bulletin of the American Medical Association of January, 1929, reprints an important article from your esteemed periodical on the subject of the use of English words by medical men.

My heartiest accord with your attitude is extended to you. No good comes from the abuse of our language, which is a treasure beyond power to express. All erroneous, illmannered or malicious applications of English words harm the common ideal of accurate thought and expression, and reacts to the injury of the speaker or writer. Furthermore, the medical profession itself is degraded by unworthy acts of its members.

Should a member of your Staff take time to study leading articles and editorials in the representative medical journals of America he will find great numbers of instances of the violation of the rules of grammar, of taste and of the common-

est regard for the order of thought and expression. Some castigation would aid the profession immeasurably.

Yours sincerely,

WELLER VAN HOOK, M. D.

To the Editor:

I do not believe that a physician should boast of anything accomplished by him but I do think he should stand and fight for merited credit when that is due him and especially when that credit has been wrongfully passed to another. Hence, this letter to your Journal which I ask you to publish.

In a lengthy article published in the State Board of Health bulletin, edited by Dr. Oscar Dowling a couple of years ago, on beriberi in Louisiana, credit was given, if I remember correctly, to Dr. C. W. Lewis of Eunice, as being the first to observe beriberi in Louisiana—this is an error. I discovered and recognized the fact that beriberi was prevalent in Louisiana and indigenous to the United States in 1898—a number of years before Dr. Lewis had seen any of his cases; in fact, I had reported of having seen, observed and treated forty cases of beriberi in Louisiana between 1898 and 1903, and stated in an article to the Journal A. M. A. that a number of other cases had come under the observation of my colleague in Abbeville, La.

My article in the Journal of the American Medical Association appearing January 10, 1903. This article brought many letters to me from prominent physicians in England and especially from India, which complimented me on having discovered that beriberi was indigenous in America and stated they had long thought that such was the case and wondered why no cases had been sooner reported. In a very able article by Scott and Herrmann of New Orleans on beriberi appearing in the Journal of the American Medical Association of June 30, 1928, I am given the proper credit by these writers on page 2084, and on page 2085 these authors say that my description in 1903 agrees very well with their observation among the patients in Central Louisiana. I had hoped that the author of the article in the State Board of Health bulletin of about a couple of years ago would have learned of his error and corrected it in due time but as this has not been done I ask space in our Journal for the correction.

Yours sincerely,

F. F. YOUNG, M. D.

NEW ORLEANS HEALTH INDEX.

During the week ending February 9, 1929, the death rate reached in New Orleans was 18.0, with a total death rate of 148. The week previous the death rate was 19.7, and a total of 162 deaths.

DEATHS FROM AUTOMOBILE ACCIDENTS.

During the week ending January 26, 1929, the total number of deaths from automobiles in the City of New Orleans was 12, 10 of which were due to accidents in the city. This corresponds to 10 and 8 respectively the year previous. During the past year there were 95 deaths in the city from automobile accidents, and a total number of deaths of 110.

ADOLPH O. HOEFELD, M. D.

It is with a peculiar sense of loss that the Journal records the death of Adolph O. Hoefeld, M. D., who passed away in the City of New Orleans on February 5, 1929 after a lingering illness. The Journal feels that one of its good friends and sturdy workers has departed from this world. Dr. Hoefeld for many years was interested and actively cooperated in the management of the Journal. He was responsible in part for the taking over of the Journal by the Louisiana State Medical Society, and was on the first Journal Committee on which he served for some years. He was never a passive member of the Committee, but was always active and energetic in furthering the purposes of the Journal and helping in every way to make it one of the outstanding state publications. Even up until the time of his death he still maintained his interest in the Journal and was always a source of advice and help.

JAMES E. POLLOCK, M. D.

On Monday, February 18, 1929, Dr. James E. Pollock died suddenly at his home 4224 General Taylor Street of an attack of angina pectoris.

Dr. Pollock was born in Aberdeen, Mississippi and was 42 years of age. He was Assistant Cororner of the Parish of Orleans. He had been connected for the past fifteen years with the Coroner's office.

He was graduated from Tulane University in 1906, and at the time of his death was a specialist in pediatrics.

Dr. Pollock was well known and will be widely mourned by his many friends.

While never an officer he was a very active member of the Orleans Parish Medical Society, Louisiana State Medical Society, American Medical Association and the Southern Medical Association.

He is survived by his widow, the former Miss Alma Porzler and by one son, James E., Jr.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

TO THE MEMBERS OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION.

The Committee of Arrangements for the Semi-centennial Celebration of the Louisiana State Medical Society has the honor to tender an invitation to each and every member of the Mississippi State Medical Association. The special program of the occasion will take place the evening of Tuesday, April 9. This will be an event in our history, and promises to eclipse all the meetings of the past. We trust you will respond one and all to our cordial invitation.

PAUL J. GELPI, M. D.,
Chairman, Committee on Arrangements.

On February 8, the City Council of Columbus named Dr. W. L. Stallworth city health officer for the next two years. The other members of the board are L. E. Lide, merchant, and Robin Weaver, lawyer. The law requires the board to consist of a physician, a merchant and a lawyer.

Dr. W. R. May, Director of the Lincoln County Health Unit, has organized his department and is actively at work in the schools as well as in the sanitation of the dairies, restaurants, drug stores, barber shops, and meat markets in the county.

CANTON HOSPITAL OPENS.

January 22, the Madison County King's Daughters Hospital was formally opened to the public. The establishment of the hospital was made possible by the actitvities of the Business and Professional Women's Club and the King's Daughters. The county of Madison and the city of Canton also made appropriations. The hospital was furnished by civic organizations and individuals. It is a modern two-story brick structure.

Dr. W. W. Scott has moved to Jackson, Mississippi. He may be addressed at the Century Building.

Dr. J. M. Dampeer, Crystal Springs, is at the Mayo Clinic for treatment.

Dr. J. R. Johnson, House physician at the South Mississippi Charity Hospital at Laurel, has resigned to enter private practice.

Dr. R. J. Peterson, of Touro Infirmary in New Orleans and at one time House Physician of the Vicksbury Charity Hospital, succeeds Dr. Johnson at the South Mississippi Charity Hospital.

The March meeting of the South Mississippi Medical Society will be held in Hattiesburg.

The regular monthly of the Issaquena-Sharkey-Warren Counties Medical Society was held jointly with the Central Medical Society in Vicksburg on February 12. Their program was as follows:

1. "Looking Forward in Medicine"—Dr. John Darrington, Yazoo City.

2. "Caesarian Section in the Treatment of Eclampsia"—Dr. H. R. Shands, Jackson.

3. "My Method of Preparation, Operation and After Treatment in Abdominal Cases"—Dr. Julius Crisler, Jackson.

The regular Staff meeting of the Vicksburg Sanitarium was held February 11 at which time the following cases were reported:

1. "Lymphoblastoma (Hodgkin's Disease)"—Dr. A. Street.

2. "Tuberculosis of the Thoracic Wall with Complications"—Dr. J. A. K. Birchett, Jr.

3. "Post Influenzal Disturbances of the Heart"—Dr. L. J. Clark.

4. "Sinusitis as a Focus of Infection in Children"—Dr. E. H. Jones.

5. "Pneumonia Following Influenza"—Dr. S. W. Johnson.

Doctor C. H. Love, former County Health Officer of Lamar County, has been transferred to Monroe County, Aberdeen, where he is Director of the newly organized full-time Health Department. Dr. Love will have associated with him in the work Mrs. Lula Lott Hicks, R. N., Public Health Nurse, and Mrs. R. C. Griffin, Technician.

Doctor W. H. Cleveland, who has just finished training at the Indianola, Mississippi Public Health Training Station, has been elected Director of the Lamar County Health Department, Purvis, Mississippi.

Doctor T. Paul Haney, Jr., former Director of the Tishomingo County Health Department, Iuka, Mississippi, has been transferred to Holmes county where he will direct the Holmes County Health Department.

Doctor B. D. Blackwelder, who for the past several years has successfully directed the

Holmes County Health Department, will direct the Adams county Health Department. Doctor Blackwelder took active charge of the Health Department on January 1. This is the first year in full-time health work for Adams County. Doctor Blackwelder has associated with him in the work the following personnel: Miss Fannie Mae Askew, R. N., Public Health Nurse; Dr. W. C. Kailer, Veterinarian, who will be Meat and Milk be Meat and Milk Inspector, Mr. Wm. Liston, general Sanitary Inspector, and Miss Eliza McCabe, Secretary.

Doctor W. R. May, former physician of Amory, Mississippi, who has finished training at the Indianola, Mississippi Training Station for Public Health Workers, and who has since had some practical experience in public health work, was chosen Director of the Lincoln county Health Department. Doctor May will have Miss Syd Vaughan, R. N., Public Health Nurse, associated with him in the work.

Doctor J. W. Dugger, recently elected Director of the Bureau of Industrial Hygiene, State Board of Health, left Jackson on Monday, February 4, for Columbus, Ohio, where he will study the Industrial Hygiene program of the state of Ohio for two or thre weeks, then going to Connecticut for a similar study. Doctor Dugger will assume the duties of his office March 1.

Doctor Mark Boyd of the Rockefeller Foundation who has been stationed at Edenton, N. C., for the past two years, has been assigned to the Mississippi State Board of Health to begin work March 15. Doctor Boyd will be in charge of malaria investigational and control measures for the State Board of Health and will have associated with him Mr. George Parker, and Mr. Nelson Rector, Engineers. Doctor Boyd will bring two technicians and his secretary with him. The technicians will be assigned to the State Hygienic Laboratory under the direction of Doctor T. W. Kemmerer.

Copiah county now has a full-time Health Department under the direction of Doctor J. A. Milne with Miss Seba Ates, R. N., Public Health Nurse.

SECRETARIES, ATTENTION!

There are twenty-one component organizations in the Mississippi State Medical Association. At the present time a third of these organizations have not reported their officers for 1929 to the State Secretary, Dr. T. M. Dye. Those who have reported are as follows:

Clarke-Wayne Counties Medical Society — Albert Hand, Shubuta.

Delta Medical Society—R. C. Finlay, Greenville.

East Mississippi Medical Society—J. E. Anderson, Louisille.

Holmes County Medical Society—F. L. Bott, Lexington.

Homochitto Valley Medical Society—Wm. K. Stowers, Natchez.

Issaquena-Sharkey-Warren Counties Society—Leon S. Lippincott, Vicksburg.

Jackson County Medical Society—J. N. Rape, Moss Point.

Kemper County Medical Society—V. M. Creekmore, DeKalb.

Leake County Medical Society—I. A. Chadwick, Carthage.

Northeast Mississippi Thirteen Counties Society—J. M. Acker, Jr., Aberdeen.

North Mississippi Six Counties Society—A. H. Little, Oxford.

South Mississippi Medical Society—J. H. Newcomb, Richton.

Tri-County Medical Society—J. R. Markette, Brookhaven.

The forty-fifth annual meeting of the Tri-States Medical Association of Mississippi, Arkansas and Tennessee was held at Memphis, Tennessee, February 6-7-8, 1929 with Dr. V. B. Philpot, Houston, Mississippi in the chair and Dr. A. F. Cooper, Memphis, as secretary.

The quality of the program is evidenced by the following names of those who participated therein: Dr. George Gellhorn, St. Louis; Dr. John H. Musser, New Orleans; Dr. Charles Metcalf Byrnes, Baltimore; Dr. Joseph A. Capps, Chicago; Dr. Vern Hunt, Rochester; Dr. Lawrason Brown, Saranac Lake; Dr. William A. Pusey, Chicago; Dr. George W. Crile, Cleveland; Dr. William E. Lower, Cleveland; Dr. Ray M. Balyeat, Oklahoma City; Dr. Barton Cook Hirst, Philadelphia; Dr. Harvey B. Beck, Baltimore; Dr. Frank Smithies, Chicago; Dr. Morris Fishbein, Chicago; Dr. Harvey J. Howard, St. Louis; Dr. Kennon Dunham, Cincinnati; Dr. Edwin Warner Ryerson, Chicago; Dr. Arthur C. Christie, Washington; Dr. Leonard G. Rowntree, Rochester; and Dr. A. Graeme Mitchell, Cincinnati.

This Association is unique in that there are no discussions of the papers and outstanding men in their respective specialities are always chosen to present the essays. For this reason particularly the meeting proved to be unusually interesting and instructive.

The officers for the ensuing year are:

President—Dr. P. W. Lutterloh, Jonesboro, Ark.

Vice-Presidents—Drs. R. M. Donald, Morehead, Miss.; L. H. McDaniel, Tyronza, Ark.; Dr. E. W. Hillsman, Trezevant, Tenn.

Secretary-Treasurer—Dr. A. F. Cooper, Memphis.

The American Association for the Study of Goiter will meet at Dayton, Ohio on March 25-27, 1929. Dr. S. D. Van Meter of Denver, Colorado, is president and Dr. Kerwin W. Kinard of Kansas City, Missouri, is corresponding secretary.

MISSISSIPPI MORTALITY STATISTICS.

Washington, D. C., January 31, 1929. The Department of Commerce announces that the 1927 death rate for Mississippi was 1,296 per 100,000 population as compared with 1,327 in 1926. This decrease in 1927 is more than accounted for by decreases in the death rates from influenza (from 84 to 34 per 100,000 population), pneumonia, all forms (from 93 to 72), typhoid and paratyphoid fever (from 22 to 15), and tuberculosis, all forms (from 110 to 103).

Increases in death rates in 1927 were from accidental drowning, due to flood (from 5 in 1926 to 14 per 100,000 population), pellagra (from 31 to 39), diseases of the heart (from 117 to 125, measles (from 4 to 10), diphtheria (from 7 to 11), and diarrhea and enteritis, under 2 years (from 29 to 33).

The last three items—measles, diphtheria and enteritis in children—bring to mind the fact that we are still failing to protect the child as we should. On the other hand, it is gratifying indeed to see the falling off in incidents of tuberculosis. This shows what strides have been made in the past decade. Diseases of the heart and kidneys are taking an increased toll and show that there is much prevention work for the physician to do.

The Board of Health is to be congratulated for the good work that is being done by its Bureau of Vital Statistics as well as for the work it is doing in preventive medicine.

DEATH NOTICES.

Dr. Covington Sharp, who had specialized in diseases of the eye, ears, nose and throat in Laurel for several years past, died, January 30, of pneumonia following an attack of influenza. He was buried in New Orleans.

Dr. J. B. Harris, sixty-seven years of age, of Stewart, Mississippi, died, January 26, at Jackson. Funeral services were held at Mulligan Springs near Stewart on the afternoon of January 28.

Dr. Harris was a graduate of the Louisville Medical College and Tulane University and had been in practive for more than forty years.

In 1893 Dr. Harris married Miss Nora Arnold at Walthall, Mississippi. He is survived by four children of this union who are: Mrs. Clyde Winters, Ruleville; Miss Bess Harris, Lucedale; Miss Nora Harris, Sidon; and Arnold Harris, Raleigh, North Carolina.

The Journal extends its sympathies to the family of Dr. Harris.

Dr. Thomas F. Elkin, of Tupelo, died at his home, January 30. Dr. Elkin had been suffering from a prolonged illness, and his death was not unexpected due to its seriousness for the last few weeks.

Dr. Elkin was born June 13, 1869 in Monroe County, Mississippi, his parents being Dr. Thomas Benjamin Elkin and Mattie Fitzgeral Elkin. He obtained his early education in the public and private schools of his native country, then entered the A. & M. College of Mississippi at Starksville. Upon completion of the prescribed work at this college he entered the University of Mississippi at Oxford. He was graduated with the degree of M. D. from Tulane University at New Orleans in 1891, and later took post graduate work in New York and Chicago. Dr. Elkin practiced medicine in Monroe County, Mississippi, for two years, then moved to Nettleton in Lee County, where he remained for six years. At the end of this time he went to Tupelo, Mississippi, where he has practiced his profession for the past thirty years. He was local surgeon for the Mobile & Ohio Railroad, and a director in the Tupelo Hospital, and previously a member of the Mississippi State Board of Health from 1916 to 1924. He was a member of the firm of Thomas-Kincannon-Elkin Drug Company, the largest drug firm in North Mississippi and was a director in The Bank of Tupelo.

Dr. Elkin was married to Miss Lottie Dale Armstrong in 1901, and to them was born two daughters, Ruby and Francis.

During his college days he was a member of the Delta Kappa Epsilon fraternity, and in his church affiliations he was a member of the First Methodist Church of Tupelo.

The Journal extends its sympathy to the bereaved family.

BOOK REVIEWS

The Ultra-Violet Rays: Their Action on Internal Nervous Diseases and Use in Preventing Loss of Color and Falling of the Hair: By Arnold Lorand, M. D. Philadelphia, F. A. Davis Company. 1928. pp. 258.

The first section of this book is concerned with the healing properties of natural and artificial sunlight, in such variegated conditions as disorders of the endocrine glands, high blood pressure, gallstones, ulcers of the stomach, old age symptoms, and cosemtic faults. The second part of the book devotes some 90 pages to the treatment of falling hair by the ultra-violet rays, while the third part of the book has to do with the treatment of graying hair by the quartz light. Any medical man interested in getting a new approach in the treatment of all these diseases and disorders by one method will get a certain amount of satisfaction from a perusal of this book.

J. H. MUSSER, M. D.

Practical Dietetics in Health and Disease: By Sanford Blum, A. B., M. S., M. D. 3d ed. rev. & enl. Philadelphia. F. A. Davis Co. 1928. pp. 380.

This book is a collection of carefully selected dietaries which (as Dr. Blum states) "can readily be modified to meet the needs of the individual case." The material is stated in such a way that one needs to spend only a few minutes to become familiar with the foods used for a specific purpose. Naturally there may be a difference of opinion about certain foods, but there is little danger of going far wrong if followed completely. It was never intended to be a scientific study of the principles of dietetics, and would be almost useless as a text-book; but as a reference book and guide in the selection of dietaries its value to one who knows the principles of dietetics yet has not been in the habit of prescribing diets, as is often the case with general practitioner or surgeon, can hardly be over-estimated. It is not difficult to understand that Dr. Blum has employed the included dietaries with success.

Although the chapters devoted to the treatment of diabetes are far from an exhaustive study they could be used until such cases, whenever possible, may be referred to an internist. Even when the diabetic diets are carefully worked out and with a good many changes in menus it is difficult to keep the patients satisfied, and the more intelligent ones grow neglectful after long periods of time. This is to say nothing of the many instances where it is impossible to teach the complicated methods of weighing and selecting foods.

The chapters on infant, childhood, and adolescence feedings are more complete and very practical. I notice that Dr. Blum recommends feeding babies very early. This is a little different from what we have been taught in most other modern dietetics, but only by use can we prove which is better. Very often people point out children to me that have been fed and most of them are strong healthy children. True they may be healthy in spite of the food given, but more than likely it is because of it, at any rate, the dietaries are carefully chosen and clearly and concisely stated.

All in all, this book on dietetics is what its name implies; and dietetics, no matter how scientifically perfect, means nothing unless expressed in foods for practical use.

O. E. WAKEFIELD, R. N.

Fever, Heat Regulation, Climate, and the Thyroid-Adrenal Apparatus: By W. Cramer, Ph.D., D.Sc., M. R. C. S. London, Longmans, Green & Co. 1928. pp. 153.

There is a nervous and a humoral apparatus for heat regulations. Stimulation of the sympathetic increases metabolism and thereby increases heat production. While it diminishes heat loss through constriction of the cutaneous blood vessels it increases heat loss through stimulation of the sweat glands or for the arrectores pilorum. Stimulation of the sympathetic by increasing heat production and by preventing a compensating increase in the heat loss or actually diminishing it produces "sympathetic fever." In fever there is a change in the "internal thermal environment" due to the stimulation of the thyroid and adrenal glands. Conversely the functional activity of these glands can be brought into play by changing the "external thermal environment." Exposure to cold stimulates these glands to increased activity. Exposure to heat diminishes their activity. The thyroid and adrenal glands represent, therefore, a humoral apparatus for the heat regulation of the body. A bracing climate is one which stimulates the sympathetic and the thyroid and adrenal glands, a "relaxing" climate, one which fails to stimulate them. The so-called heat center in the tuber cinereum is explicable as a grooup of nerve cells representing the central connections of the sympathetic.

Conditions involving increased heat production, such as a change from a hot to a cold environment or the "sympathetic fever" induced by the injection of pyrogenic substance, produces an intense secretory activity of the thyroid, of which the disappearance of colloid is the most obvious feature. Conversely change from a cold to a hot

environment which reduces heat production is accompanied by an accumulation of colloid and by cytological changes in the cells of the gland indicating diminished cellular activity. The liver by virtue of its glycogenic function is regarded as the central organ of metabolism.

Pathological evidence that the thyroid adrenal apparatus is concerned in the heat regulation of the body is presented.

This investigation into the thyroid adrenal apparatus, fever and heat regulation had its origin in an investigation of the influence of various hormones, and of the thyroid hormone in particular, on the growth of cancer. Since it seemed possible that the regression of cancerous growths, when it occurred, was due to the condition of fever which had existed, this led to an investigation of the mechanism of fever. The book is, therefore, offered as a by-product of cancer research.

There are numerous very good illustrations.

HENRY LAURENS, PH.D.

Bacteriology and Surgery of Chronic Arthritis and Rheumatism: By H. Warren Crowe, D. M., B. Ch. (Oxon.), M. R. C. S., L. R. C. P., New York, Oxford University Press. 1927. 187 pp.

This book is a most modern contribution of ten chapters covering in a most artistic manner the writer's views of the bacteriology and surgery of chronic joint manifestations. His hypothesis is made most real by his careful checking and follow-up of his case records and experiments. It is most fortunate that this contribution should follow so closely a previous work, namely, "Treatment of Chronic Arthritis in Rheumatism," which has invoked so much favorable consideration by the profession. The text is most admirably arranged, beautifully illustrated and very attractive for reading purposes. Those interested in the solution of this long mooted question, namely rheumatism, will find in a review of this work the most modern conception of the phases of this disease which the author attempts to treat.

P. T. TALBOT, M. D.

Diseases of the Intestines: Including the Liver, Gall-Bladder, Pancreas and Lower Alimentary tract: 3d ed. rev. & enl. Philadelphia, F. A. Davis Co. 1928. pp. 905.

The author has well covered the subject of the diseases of the intestines and lower alimentary tract in the limited space of one volume of 905 pages. The book is well illustrated with many text engravings and plates.

Laboratory procedures and technic for examinations of the intestines and lower alimentary tract, pancrease, gall-bladder and liver are taken up in detail. And in many instances the author's work is original. The author has done extensive work on the examination of pancreatic enzymes, but we cannot agree that the potency of the various enzymes run parallel.

This volume covers for the first time the diseases of the liver, gall-bladder and ducts, and the pancrease. Diseases of the small and large bowel, including appendicitis; the rectum and anus, are fully taken up as to etiology, pathology, symptoms, diagnosis and treatment. The chapter on chronic excessive intestinal toxemia, described as a clinical entity is both interesting and illuminating.

The subjects are not arranged as a compilation of data but the personal experiences and original work of the author are noted.

HERBERT L. WEINBERGER, M. D.

Public Health and Hygiene: By William Hallock Park, M. D. 2d edition, thoroughly revised. Philadelphia, Lea & Febiger. 1928. pp. 902.

The second edition of Dr. W. H. Park's book on Public Health and Hygiene is a welcome contribution to our knowledge of this subject. A large number of well-known contributors have collaborated with Dr. Park in the development of the work. The subject itself, or rather the subjects, are briefly but adequately covered and the diction is most excellent.

The book is divided into thirty-four chapters, dealing with all of the ordinary aspects of public health and preventive medicine as well as with sanitation, ventilation, water supply, personal, military, child, tropical and mental hygiene, and public health education. The chapter by Professor Winslow is very interesting on account of the new light shed upon the facts of humidity and temperature on the health of the individual. A chapter on cancer from the public health viewpoint by Dr. Soper is also very interesting.

Dr. Park has incorporated the results of the investigations of himself and his colleagues on prevention of diphtheria, the administration of toxin-antitoxin and comments on the permanence of the immunity produced. These remarks from this well-known investigator on the subject are worthy of the closest attention by all physicians.

The book, besides being a collection of scientific facts dealing with the transmission and prevention of disease, makes interesting reading for anyone who desires information on the broad subject of individual and public health maintenance. It is a book that should be in the library of every practicing physician and public health official.

L. C. SCOTT, M. D.

Laboratory Manual of the Massachusetts General Hospital: By Roy H. Wheeler, M. D., and F. T. Hunter, M. D. 2d ed., enl. and thoroughly rev. Philadelphia, Lea & Febiger. 1928. pp. 101.

A brief and accurate guide in laboratory procedure that may prove of use to the general practitioner.

I. L. ROBBINS, M. D.

Physician and Patient: Edited by L. Eugene Emerson. Cambridge, Harvard University Press. 1929. pp. 244.

This book consists of a group of lectures on the physician and the personal care of the patient, from the Harvard Medical School. It is a subject of vital importance and strikes at the very heart of the successful practice of medicine in its most humanitarian and social aspects. The book should be recommended to all students and both physicians and students may read it with great profit to themselves. The chapter entitled "The Medical Education of Jones, by Smith," is most excellent and doubtlessly refers to Dr. Osler. I recommend it most heartily.

I. L. ROBBINS, M. D.

The Brain from Ape to Man: By Frederick Tilney, Ph.D., M. D. (With chapters on the reconstruction of the gray matter of the primate brain stem by H. A. Riley, A. M., M. D.) New York, Paul B. Hoeber, Inc. 1928. 2v. pp. 1220.

Doctor Tilney presents in this work a survey of the brains of eleven primates representing a succession from the lower members of the group to the higher anthropoids and man. The available evidences of primitive man are inserted in the series, the whole forming a stimulating account of evolutionary sequence.

The purpose of the book is the assembling and discussion of the evidences of evolution displayed in the brain. A descriptive section is accordingly devoted to each of the forms, treating the surface anatomy of the brain and internal structure of the brain stem There is, further, an analysis of the critical modifications in behavior of the particular animals, to correlate with their varying cerebral structures. Demonstration is presented that the evolutionary process is reflected in parallel changes of behavior and brain structure. This process is most apparent in accessions to the function of neokinesis (the reactions determined by neural combinations assembled in the cerebral cortex, exclusive of olfactory regions, and projected via the pyramidal system) and corresponding modification of the structures regulating it. Neokinesis attains its highest expression with the assumption of an upright posture and bipedal locomotion, the hand being released for specialized performances.

Though the subject of human evolution has a wide appeal the general reader is likely to be discouraged by the extensive presentation of technical details. The book will be of particular value to those interested in such fields as zoology, anthropology, anatomy and phychology.

HAROLD CUMMINS, Ph.D.

Physical Education Activities for High School Girls: By the Staff of the Department of Physical Education for Women, University of Michigan. Philadelphia, Lea & Febiger. 1928. Illus. pp. 322.

Although the authors make modest claim for their work it is nevertheless an exhaustive work on the subject. It deals with the organization and administration of the physical activities. In another chapter physical examination forms are given and following conference on the physical defects found in the girls—gymnastics are ordered for both the individual and groups—a great many games, tournaments and meets are described most fully. It should prove a veritable treasure trove to those engaged in this work.

I. L. ROBBINS, M. D.

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Reprint: Rural Medical Practice. The Situation in Rural Districts as Regards Medical Service, by Mr. Guy B. Horton. Why the Situation in the Rural Districts as Regards Medical Service, by J. N. Jenne, M. D.